THE AUTOMOBILE AND MOTOR REVIEW

WEEKLY — NEW YORK — SATURDAY, SEPTEMBER 20, 1902 — CHICAGO — 10 CENTS

French Army Automobiles

FOR several years past the governments of France, England and Germany have been deeply interested in the testing and improving of all types of motor cars with a view to their use in field service. The standard touring car has been largely used as a convenient means of transport in following the great annual maneuvers, the Emperor of Germany in particular being partial to the new vehicle. The speed car has been utilized for the carrying of dispatches for long distances, and the various makes of heavy vehicles, such as trucks and tractors, have been tested with a view to their utilization for the moving of troops, stores, ammunition and artillery. In addition to the examination and practical trial of all classes of motor vehicles regularly built for pleasure and commercial use, special efforts have been made to develop new types directly adapted for the rough and trying work of real war. The trials of

GROUP OF FRENCH ARMY OFFICERS LEAVING THE ECOLE MILITAIRE IN A GASOLINE ADER CAR

lorries and other heavy vehicles recently conducted by the British Government, have placed upon record most complete and reliable data showing the practicability of such vehicles at the present time, and the coming trials of the German Government promise equally valuable results.

In France the War Department has done much officially to encourage the development of the motor vehicle and many army officers have interested themselves individually in the subject. It will be remembered that the "Criterium des Poids Lourds" of last Spring, the most extensive trial of commercial vehicles yet attempted, was under the direction of a party of army officers, who supervised all the preliminaries and carried out most successfully the actual work of measuring and sealing the fuel reservoirs, timing at the controls and tabulating the results. The illustration on the preceding page shows four officers of the staff of the Ecole Militaire in an Ader car. The smaller photograph shows a very interesting use of the motor tractor and trailers in the transport of troops through Paris on the way to the maneuvers of last July. For ten days this novel train, a Scotte tractor, drawing a train of trailers carrying 100 men, traversed the streets between two railway terminals.

INCREASED PRICE OF GASOLINE

Claimed to Be Due to "General Market Conditions" and Not to the Demand for Automobile and Launch Use—No Scarcity Probable

An increased schedule of prices for Pratt's naphtha and gasoline was put into effect on August 4 by the Standard Oil Co. By the new schedule the prices to the retail dealer of stove gasoline and of 76-degree deodorized gasoline, are respectively 13 1-2 and 14 1-2 cents per gallon in barrels. These prices include both barrels and cartage and are F. O. B. New York. The fact that dealers in other places must add freight and cost of local handling brings the price up somewhat higher. As the empty packages are returnable at market prices (now 95 cents per barrel), the dealer gets a rebate of nearly 2 cents per gallon.

This increase in prices, which amounts to 2 cents at retail, is credited to "general market conditions," and not to the demand for high grade gasoline for use in motor vehicles, launches and gas engines. And it is intimated that any further change is likely to be toward lower prices rather than toward a further rise. While the present prices are higher than those that prevailed immediately preceding the increase, they are not so high as they were some years ago, when benzine was 13 cents as against 12 cents to-day; and, on the other hand, some time previous to that benzine once sold at 6 cents.

The demand for gasoline created by the automobile and launch industries is insignificant as compared with the demand for gasoline in manufacturing, and no fear is entertained by those supplying the fluid that any difficulty will be met in the future in filling all orders. In fact, it is stated that more stove gasoline is being used in motor vehicles than of the higher test 76-degree gasoline, for the reason that the latter is less readily obtainable. And, except in very cold weather, the former gives good results in the hydro-carbon engine. Dealers in the smaller cities and villages do not carry 76-degree gasoline because there is little demand for it, and it is of such a volatile nature that there is an appreciable loss by evaporation from the barrel unless it is emptied within a few days. While the purchase of it in sealed cans would prevent such evaporation, it would also make the fluid higher in price on account of the greater expense of packing, bringing the retail price to customers to nearly 25 cents per gallon, as against 17 cents for the bulk gasoline from the barrel.

As to the possibility of a shortage of 76-degree gasoline in the future, it is authoritatively stated that such a contingency is not at all probable, since if the demand becomes sufficiently heavy to exhaust the supply of that grade, it is possible to manufacture large quantities by the redistillation of stove gasoline, which contains a large proportion of the higher grade fluid. This would, however, make the 76-test more costly. At present the call for 76-test is so small in proportion to the demand for stove gasoline that considerable quantities of the former are mixed occasionally with the lower grades to produce more of the stove gasoline. Apparently, therefore, there is no cause for concern on the part of motorists.

It is estimated that there are 8,000 motor vehicles now in use in the Department of the Seine, France, of which 3,888 are registered as capable of a speed of more than 30 kms. (20 miles).

CONCERNING THE LONDON SHOW

The support of most of the leading motor vehicles concerns of England has been secured by the management of the Crystal Palace and Motor Traders' Show, to be held in London from January 30 to February 7, 1903. The following twelve firms have also signed a bond under forfeit of $1,250 not to exhibit at any other show in 1903: British Electromobile Co., City Suburban Electric Carriage Co., Daimler Motor Co., De Dion-Bouton, Farman Automobile Agency, Humber & Co., Locomobile Co. of America, G. F. Milnes & Co., Motor Power Co., Panhard & Levassor, Sims Mfg. Co., and Thornycroft Steam Wagon Co. The object of this action is to relieve the manufacturing trade of the expense and annoyance of exhibiting at a multiplicity of shows, the prevention of which was to a great extent the cause of the formation of the Society of Motor Manufacturers and Traders. This society has received very influential support and after a careful consideration of the subject, it decided to support the Crystal Palace show, for the following reasons:

SCOTTE TRACTOR WITH TRAILERS, CARRYING TROOPS THROUGH PARIS

It will be held in the most suitable building, one built entirely of glass and iron with a floor space available for show purposes of over 70,000 sq. ft., and is surrounded by 200 acres of park-like grounds in which practical demonstrations of the various types of cars can be given, and also because the Crystal Palace Co. was prepared to hand over the management to a committee to be formed of representatives of the society and of itself, and was also prepared to give them a practical interest in the result of the exhibition by allowing them 33⅓ per cent. of the profits.

The normal charge for space in the exhibition is £1 ($5) per square foot. The space is reported by Frederick W. Baily, secretary, to be filling up very fast.

The Gasoline Vehicle

XI—TRANSMISSION SYSTEMS*

Continued from Last Week

In the article last week the principal transmission systems of American origin were touched on and classified. It was seen that they were characterized by two distinctive features—the location of a horizontal motor under the seat, with its shaft lying across the vehicle, and the use of a single chain drive to the rear axle, in which is located the differential or compensating gear. The speed-changing gear is directly adjacent to the motor, often with direct drive on the high gear, and for the most part sliding gears are rejected in favor of individual clutches or planetary gear systems in which all the gear teeth are always in mesh.

Forward Motor and Longitudinal Shafts

With passengers up, a car arranged on the usual American plan has most of its weight on the rear axle, and the body has no space for parcels and very little for tools. The motor and speed gears, while not really inaccessible, are in a position calling for considerable ingenuity in the arrangement of loose panels, removable seats, etc., and call for some bodily contortions at the best, to reach parts other than the ordinary oil cups, sparkers, and cocks. As regards weight and parcel space, now that the "horseless carriage" conception of form is falling into desuetude, builders are not afraid to place a box in front of the dash, in which parcels may be carried or tanks concealed. This results in a sort of compromise between the weight distribution of the early American machines and the "motor-front" French cars.

These latter, which from their numerous advantages are finding many imitators on this side of the water, carry the motor just back of the front axle, with its shaft lying fore and aft, and driving through the flywheel clutch the first shaft of the speed gears, whose case is below the front or driver's seat. The dash is just back of the motor, which is usually vertical and always enclosed by an ornamental hood of sheet metal. The body, except the dash, is nearly or quite detached from the mechanism, all of which except the motor lies beneath the level of the floor, and the body, which rests on the main frame, is removable by loosening a few bolts. All of the space under the seats is available for storage. The entire weight of frame, machinery, tanks, body, and passengers is carried by four springs, usually semi-elliptic, one at each end of each axle. The passengers sit fairly well back, more over the rear than over the front axle, and this is found to be more comfortable on the road than a more forward position. As the motor is well forward of the seats, with most of its weight on the first axle, the front springs may be made relatively stiff, so that its vibrations, though more noticeable than those of a horizontal motor of the same number of cylinders, do not sensibly affect the passengers. The vertical position of the motor conduces to freedom from ignition troubles; and, last, but not least, its location gives almost perfect accessibility to every part, by simply removing the hood.

Motor-Front Idea Worked Out

The drawbacks to the "motor-front" construction with longitudinal shafts are mainly those of expense. As the shafts lie at right angles to the rear axle, it is necessary to employ bevel gears to transform the motion. The gear case is never with longitudinal shafts, integral with the crank case, and is seldom near enough to it to guarantee alignment between the two. Consequently the connection between the two shafts must have some flexibility. In the practice now coming into vogue, the conical portion of the clutch is journaled on the extreme end of the crank shaft, as in the Clement clutch, illustrated a fortnight ago, and a loose jaw coupling, or some form of universal joint connects it with the first gear shaft. All this, with the necessary appliances for throwing out the clutch against the spring which presses it in, makes a good deal of mechanism.

Partly to assist the alignment of the

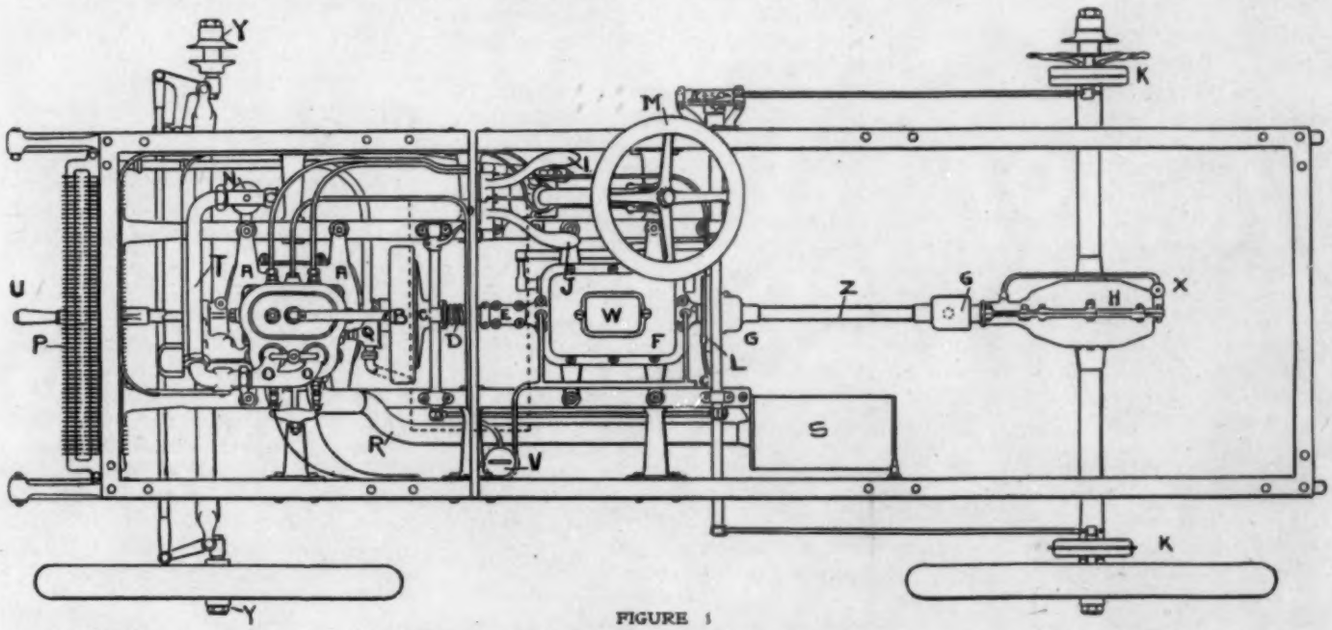


FIGURE 1

A Motor
B Fly-wheel
C Clutch
D Clutch spring
E Bolted sleeve connecting clutch and gear shafts
F Gear-box
G Universal joints of transmission shaft
H Gear case enclosing differential gear and bevel gearing
I Hand brake pedal
J Clutch pedal
K Driving wheel side brakes
L Band brake
M Steering wheel
N Carbureter
O Inlet valve branch pump
P Radiators
Q Pump
R Exhaust pump
S Muffler
T Induction pipe
U Starting handle
V Gear shaft bearings lubricator
W Inspection lid
X Lubricator
Y Steering wheel axles
Z Joints, transmission shaft

* *The series on "The Gasoline Vehicle" was begun in the issue of June 7. Although treating of a common subject, the several articles will be self contained, so that any of them may be read without reference to others of the series.*

motor and gear case, and partly to get the motor as low as possible, for the sake of stability, the motor and gear case are commonly carried on a "false frame" of angle steel, narrower than the main frame and suspended somewhat below it. This false frame was formerly suspended by the lightest possible iron strips, with the idea that these should yield somewhat to the springing of the main frame, and allow the false frame to keep its shape; but with the increasing use of flexible shaft connections this idea has largely been discarded, and the false frame is often so rigidly connected to the main frame that the two must necessarily "come and go" together. In some recent machines, like the C. G. & V., and the Mercedes Simplex, the false frame is even suppressed altogether, and the main frame brought so low, by bending the axles, that the shaft line of the engine is but little below the frame. In other machines, like the Peugeot, the engine is carried on a false frame, but the gear case is not. In all such cases universal joints in some form are depended on to keep the shafts from binding, and the frame is made only heavy enough for strength, with no effort to obtain rigidity at the sacrifice of lightness. Practically, the only exception to this is in the case of cars with tubular frames, whose natural stiffness has led some of their builders to consider this flexible coupling unnecessary.

From Gear Case to Wheels

In the Clement car, which has been frequently referred to heretofore, and a plan of whose "chassis" in the 9-h.p. size forms the subject of Fig. 1, the power is transmitted from the second gear shaft to the rear axle, through a short shaft. This shaft has at each end a universal joint, and being likewise arranged so as to telescope slightly as to length, permits perfectly free movement of the rear axle, relatively to the frame. The only connection between them is the two semi-elliptic rear springs, whose forward ends are pinned in brackets on the under side of the frame. The rear universal joint connects to a bevel pinion meshing with a large bevel gear. This gear, whose center is cut away, leaving it in effect a toothed ring, is bolted to the shell of the differential or compensating gear, by whose action the inner rear wheel is able to turn slower than the outer wheel when the vehicle is going around a corner. Differential bevel gear and pinion, and pinion shaft, are all inclosed in the oil-tight split casing.

This form of transmission is coming into rapid popularity for light cars, on account of its neatness and the absence of chains. It is obviously rather costly, but is worth having for those who can pay for it.

In the next issue the "two-chain drive" will be described, and the possibility of simplifying and cheapening the motor-front system, while retaining its undeniable advantages, will be discussed. Meanwhile we may abandon for the moment the purely mechanical viewpoint, and consider the several transmission systems in their relation to the chauffeur who must use them to control his machine.

The Control Systems

The original conception governing the control system, in America at least, had its rise in a fancied analogy to steam propulsion. Thus, the typical American steam carriage is controlled by one throttle lever, one reverse lever, and one brake pedal. Passing by for the moment, the reverse lever—which may be, and is, sometimes combined with the throttle lever—we see that here is one function—opening the throttle—needed to start, and two—closing the throttle and applying the brake—required for a quick stop, and that these are wholly distinct and require separate movements. In the gasoline vehicle there are numerous functions—throttle, spark control, speed gear changing, and clutch operation—to be attended to at one time or another, as the equivalent of the simple throttle of the steam car. As only one or two are usually called into play at any one time, however, it seemed natural to make the throttle lever the equivalent of the same appliance on the steam car, to operate the clutch or clutches by another lever, which might be the same lever that operated the speed changes, if individual clutches were used, and to operate the brake independently by a pedal. Furthermore, it seemed most natural to use the throttle wherever possible, rather than the clutch, for momentary slow-downs—a tendency encouraged by the common use of but one gear for a considerable range of speeds. Thus two things resulted, both of which were quite different from anything found in steam carriage operation. First, slowing down the car by slowing down the engine meant loss of flywheel momentum; and this, coupled with the sluggishness sometimes noticed in the explosions on quickly opening the throttle, made the car slow to gain speed again. On an open road this would not matter, but when maneuvering in crowded traffic the difference between a steam and gasoline car was noticeable. Second, when the clutch was opened and the brake applied for a quick stop, the engine, unless it had a governor, which it usually did not, would race till throttled down.

This primitive system, modified slightly or not at all, is still to be found on many American machines to-day. They are mostly small machines, and the complicated movements needed to effect an emergency stop do not embarrass the operator as they inevitably would in a larger machine. Nevertheless it is evident that a quicker method of control must eventually prevail; and the first step in this direction is to arrange the clutch and brake so that a single movement shall release the one and set the other. This is accomplished for the high speed in such machines as the Winton, the St. Louis, and the Packard, Model C, by operating the high-speed clutch and the ordinary brake, respectively, by the backward and forward movement of a single long hand lever. Another lever then operates the slow speed and reverse—or, as in the Packard, a single lever working in a double slot performs the functions of both—and an emergency brake actuated by pedal may be used with these as well as with the high speed.

As the high speed is the one with which a quick stop is most needful, this is an obvious improvement, as the lever, having a long motion, may give results equal to the most powerful pedal brake. Still the arrangement is but half complete. The motor should be protected automatically by a governor or otherwise, from racing wnen the clutch is opened. This subject was touched on in the article on "Governing and Motor Control," in the issue of August 9 last. Either a centrifugal governor or a simple connection between the clutch and throttle may be used for this purpose. The essential point to be remembered is that the motor should by no means be slowed down below its normal speed by any releasing of the clutch for a merely momentary slow-down. The reason for this is that the momentum of the flywheel, when the motor is allowed to maintain its normal speed, is a powerful aid in effecting a quick acceleration, when the clutch is again engaged. Finally, in the interests of simplicity and completeness, the same movements for clutch release and braking should be available when running in the low and intermediate gears as in the high gear.

The Pedal Control

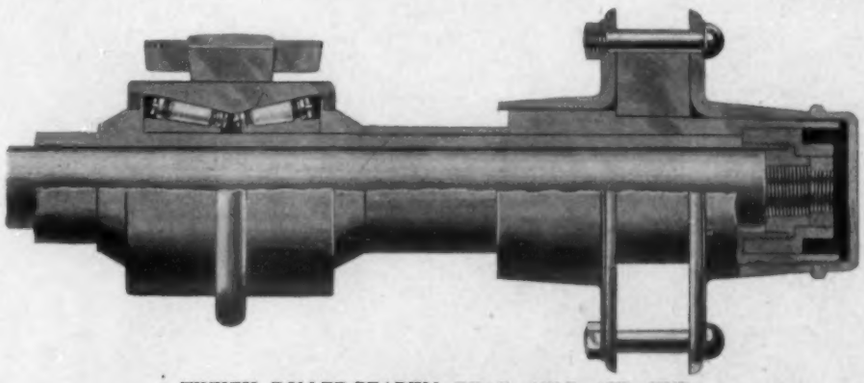
It has remained for our French cousins to grasp this problem and work it out by a system which for refinement of conception and absolute simplicity of operation is quite the most valuable contribution to automobile design of the many for which the world is indebted to them. The "pedal system" of control, which has been referred to several times previously in this series, comprises essentially the following elements: a single flywheel clutch of large surface, automatically engaged by a spring and released, against the pressure of the spring, by mechanism to be described; a pedal under the operator's left foot, which releases the clutch when pressed down; a similar pedal under the right foot, which when pressed locks with the first pedal, releasing the clutch, and which at the same time sets a brake; a long hand lever, working over a toothed sector, by pushing (sometimes pulling) on which the operator sets a pair of brakes, one on each rear wheel; a second lever, usually shorter, by which the gear shifts and sometimes also the reverse are effected. The first brake is usually one remove from the wheels, so that it acts through the bevel gear drive or through the chains. It is

therefore not as powerful as the wheel brakes, and is used for ordinary slowdowns. The wheel brake lever has a connection releasing the clutch, and it has a latch which holds it where set till it is released by the operator. In practice, the operator will usually press on the clutch pedal when applying either brake, to relieve the other foot or the hand of that amount of work; but it is impossible to make a mistake through forgetfulness, for there is but one motion which it is essential to remember. Again, nearly every French motor of any size has a governor to take care of its speed, and it is allowed to run without attention when the clutch is momentarily released. The result is a degree of certainty and quickness in handling, especially in crowded traffic, which is impossible of attainment by any other system.

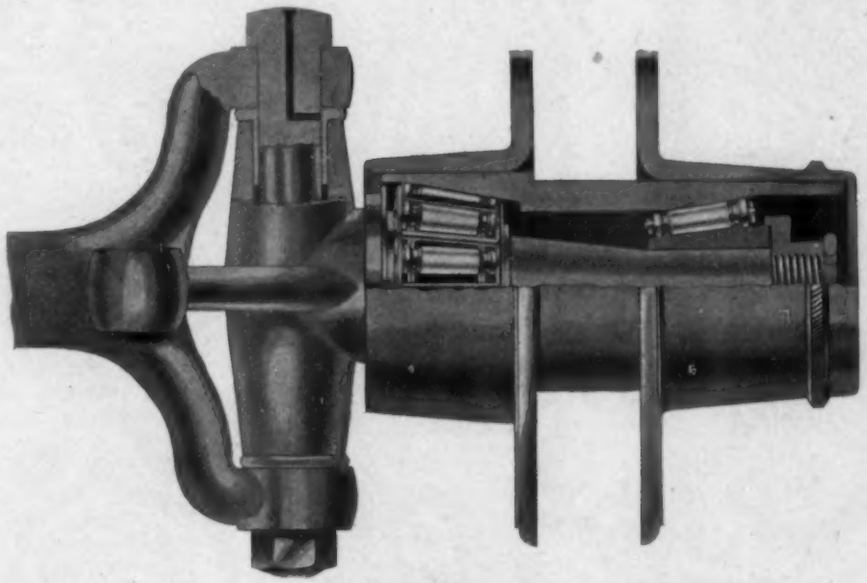
TIMKEN ROLLER-BEARING HUBS

The taper construction of the cones, rollers and boxes in the hubs shown in the accompanying engravings make it possible to take up any wear and also accomplishes the much desired object of converting end thrust into rolling motion. The box of the front hub is machined from the solid bar, case hardened and ground. The flanges are stamped from plate steel, the rear one being brazed to the box and the front flange slipping over the end of the box, thereby permitting the use of different widths of spokes for artillery wheels. The use of the stamped flanges produces a light hub that is short over all and especially short from the spoke center line to the belt through the yoke. The outer end of the hub is wholly closed against dust and dirt by the flange and cap, while the inner end is made dustproof by means of a felt washer. The arrangement of the rollers in their cages, which cause them to run true and keep them separated to prevent any wedging effect, is plainly shown in the illustrations. The outer case is slidable on the spindle and bears against the axle nut, by which adjustment is made. It is impossible to make the adjustment too tight, as the nut jams against the shoulder of the spindle. If at any time the bearing wears so that the adjustment is loose, a thin steel washer, supplied at any time by the makers of the hub, can be inserted within the annularly recessed face of the nut to advance the cone so as to take up the looseness. The durability of the bearing is not affected, however, by looseness. A cotter pin behind the axle nut prevents it vibrating off. The bolts and bushings in the steering knuckles are machined from soft steel, case hardened and ground. These knuckles are furnished in various sizes and styles complete, with the roller bearings, artillery hubs, wire wheel hubs, or with boxes for wood hub or Sarven wheels.

The rear driving axle is furnished complete in various sizes, for any desired track, any width between springs, and with keyseated artillery or wire wheel hubs or without hubs, all complete ready for clipping on the springs and attaching the compensating gear. The shaft or live axle extending unbroken from wheel to wheel, is made from cold drawn axle steel. The tubing, engaging on one side of the compensating gear, is made of cold drawn seamless tubing, and beneath each spring is placed one of the roller bearings shown in the engraving. The box or cup is machined from the solid bar and grooved on the outside, having the spring seat casting and reach or body bar lug immovably clipped around it. The collar, against which the inner cone impinges, is brazed onto the shaft or tubing, the outer collar being loose and having a loose sleeve intervening between it and the hub. As the nut forces the hub inward, the hub in turn pushes the sleeve inward against the loose collar, thus making the adjustment of the bearing. The wear is taken up as before described. The manufacturer, the Timken Roller Bearing Co., of Canton, O., will, when desired, furnish only the cones, bearings, collars and cups with spring seat attached. It is also prepared to furnish these rear bearings for different styles of tubular and divided axles, etc.



TIMKEN ROLLER-BEARING REAR AXLE AND HUB



TMIKEN ROLLER-BEARING ARTILLERY HUB

ACCIDENT CAUSES DEATH

Sad news of an accident that resulted in the death of Mrs. W. M. Stewart, wife of United States Senator Stewart, of Nevada, is conveyed in dispatches of last Saturday from San Francisco. According to report, Mrs. Stewart, who had been visiting her brother in Oakland, went for a ride on Friday with Charles Foote, her nephew, and a young friend named Taylor. The party drove to Alameda in the automobile and in some way, while speeding along the boulevard, the one who was operating the machine lost control and the vehicle ran into a telegraph pole. Mrs. Stewart was thrown to the ground, striking on the curb and crushing several ribs, so that she expired in an hour. Her companions were almost unhurt.

Postmaster McMichael, of Philadelphia, has made arrangements with a local motor vehicle concern to furnish a machine for one week to carry the third and fourth class mail matter between the Post Office and Broad Street station, as an experiment with view to the substitution of motor mail wagons for horse-drawn vehicles in the postal service of the city.

A SUCCESSFUL EXPERIMENT

The use of the motor car by commercial travelers is still in its infancy, but there is no question that it will in time largely supplement the railway for this class of work. In covering a territory where there are many small towns not very far apart there is no comparison between the work which may be accomplished by an independent conveyance and that possible by railway communication. During the present season the Moxie Company has furnished several of its traveling men with Stanley steam cars; we understand with very satisfactory results. The following extract from a letter by the user of one of these vehicles speaks for itself:

A Travelling Man's Steam Car

"As an advertiser the motor car has, in my opinion, no equal at the present day; wherever I go or stop I am surrounded by a crowd of interested business men, as well as ordinary spectators. The traveling men at the hotels along the road all want to know about the machine, and speak of the aid it would be to them in getting into small towns and out again without dependence on the infrequent and often inconvenient times of local trains. The car is of 6 h.p., weighing about 600 lbs., and carrying 14 gals. of gasoline under the front seat, and 25 gals. of water under the rear seat; the gasoline is good for 125 miles and the water for 25 to 30 miles. One day's run this summer was from Danbury to Waterbury, Conn., about 40 miles, made the day following a heavy rain, and over very poor roads, yet I made the trip in less than 4 hours, stopping at five small towns by the way. Though good for business, these towns were not connected by railroad.

"I am not an engineer or a machinist, never having had to do with machinery, and I have never used a motor vehicle, but the running of the car comes easily to me, as it would to any man with a fair amount of common sense. I carry my personal luggage on a rack in the rear, and samples, advertising matter, etc., in the box seen in front; being thus equipped for an indefinite time."

Another of these machines is now at work in Maine for the same owners.

A. C. A. RELIABILITY RUN

Maps and Itinerary of the Route from New York to Boston and Return—Distances, Details and Entries for the 500-Mile Test

The committee in charge of the 500-mile reliability contest of the Automobile Club of America, from New York to Boston and return, has issued the preliminary road description and itinerary, with the maps of each day's run. These are shown on the adjoining page. The program of the contest is briefly as follows:

	Miles.
Thursday, Oct. 9, New York to New Haven..	79
Friday, Oct. 10, New Haven to Springfield..	68.6
Saturday, Oct. 11, Springfield to Boston.....	96.6
Monday, Oct. 13, Boston to Springfield.....	96.6
Tuesday, Oct. 14, Springfield to New Haven..	68.6
Wednesday, Oct. 15, New Haven to New York	79
	488.4

The following entries had been received up to September 16:

No.	Class.		Maker.	Entered by.
1	C	Gasoline	Ohio Automobile Co.	Harlan W. Whipple
2	C	Gasoline	Ohio Automobile Co.	Henry B. Joy
3	C	Gasoline	Ohio Automobile Co.	Adams-McMurtry Co.
4	C	Gasoline	Ohio Automobile Co.	Adams-McMurtry Co.
5	B	Steam	Prescott Automobile Mfg. Co.	Prescott Auto. Mfg. Co.
6	B	Steam	Foster Automobile Mfg. Co.	Foster Auto. Mfg. Co.
7	B	Steam	Lane Motor Vehicle Co.	Lane Motor Veh. Co.
8	B	Steam	Lane Motor Vehicle Co.	Lane Motor Veh. Co.
9	C	Gasoline	Pope-Robinson Co.	Pope-Robinson Co.
10	B	Gasoline	Haynes-Apperson Co.	Haynes-Apperson Co.
11	B	Gasoline	Haynes-Apperson Co.	Haynes-Apperson Co.
12	B	Gasoline	Haynes-Apperson Co.	Haynes-Apperson Co.
13	B	Gasoline	Autocar Company	Autocar Company
14	B	Gasoline	Autocar Company	Autocar Company
15	B	Gasoline	Ward Leonard Electric Co.	Ward Leonard Electric Co.
16	B	Gasoline	Ward Leonard Electric Co.	Ward Leonard Electric Co.
17	C	Gasoline	Apperson Brothers.	Apperson Bros. Automobile Co.
18	C	Gasoline	H. Bartol Brazier	H. Bartol Brazier
19	A	Gasoline	Torbensen Gear, Incorporated	Torbensen Gear, Incorporated
20	A	Gasoline	The Geo. N. Pierce Co.	The Geo. N. Pierce Co.
21	B	Gasoline	A. Darracq & Cie.	Harold H. Brown
24	B	Steam	White Sewing Machine Co.	P. H. Deming
25	B	Steam	White Sewing Machine Co.	Windsor T. White
26	B	Steam	White Sewing Machine Co.	White Sewing Machine Co.
27	B	Steam	White Sewing Machine Co.	White Sewing Machine Co.
28	B	Steam	White Sewing Machine Co.	White Sewing Machine Co.
29	C	Gasoline	Locomobile Co. of America.	A. L. Riker
22	B	Steam	Foster Automobile Mfg. Co.	Foster Auto. Mfg. Co.
23	C	Gasoline	Adams-McMurtry Co.	Adams-McMurtry Co.
	B	Gasoline	J. Stevens Arms & Tool Co.	J. Stevens Arms & Tool Co.
	B	Gasoline	J. Stevens Arms & Tool Co.	J. Stevens Arms & Tool Co.
	B	Gasoline	Thos. B. Jeffery & Co.	Thos. B. Jeffery & Co.
	B	Steam	Grout Brothers.	Grout Brothers
	C	Steam	Locomobile Co. of America.	S. T. Davi[illegible]r.
	A	Steam	Locomobile Co. of America.	Locomobile Co. of Ame[illegible]a
	A	Steam	Locomobile Co. of America.	Locomobile Co. of America

The route will be marked on the outward trip by plain white arrows pointing in the direction of Boston, and on the return trip by white arrows with a red bar through the center of each, pointing in the direction of New York. The start will be made at 9 A. M. on October 9, from the club house of the A. C. A., at the corner of Fifth Ave. and Fifty-eighth St., the cars lining up as in previous contests on West Fifty-eighth Street, facing east. They will be started in order at half-minute intervals. The first stage will be over the route so well known to all New York motorists, the old Boston Post Road through New Rochelle, Rye, Greenwich and Stamford, to Norwalk, the noon control. Gasoline and water may be had at Mamaroneck and Stamford. In this distance of 44 miles some steep hills will be met, but they are all old friends, that at Mianus may make trouble for some, but Putnam's Hill at Greenwich, with a down grade of 13 per cent., will be formidable only on the return trip. Grades of 8 to 10 per cent. are frequent. The maximum time for this stage is 5:34, the minimum is 2:58.

The afternoon run will be through Westport, Southport, Bridgeport, Milford (gasoline and water), and Savin Rock into New Haven. The garage will be the factory of the New Haven Wheel Works. Some hills must be climbed on this stage, the average grade being about 8 per cent. The time allowed for the 34 miles is from 2:18 to 4:19.

Leaving New Haven next morning the route trends nearly north, through North Haven, Wallingford, Meriden (gasoline and water), then on through Berlin Station, New Britain and into Hartford, for lunch. The time limits are between 2:48 and 5:17.

At Hartford the road meets the Connecticut River and follows it closely through Windsor, Windsor Locks, Thompsonville and into Springfield, where the cars will be stored in the Springfield Riding Academy. This is a short ride, but 26 miles, and in good weather should be a very picturesque and pleasant one. The grades are light, about 5 per cent. The time allowed is between 1:46 and 3:18.

The longest stage of the run is on Saturday morning, 52 miles east from Springfield to Worcester, through North Wilbraham, Palmer, Warren (gasoline and water), Brookfield and Leicester. The road is winding, with some steep grades,

notably beyond West Brookfield, 12 per cent., and in Leicester, 15 per cent. The time allowed is from 3:28 to 6:30.

The afternoon run is also a long one, 45 miles, through Shrewsbury, Northboro, Southboro, South Framingham (gasoline and water), Natick, Newton Center, and into Boston, to the Harvard Automobile Station No. 2, where the cars will be stored. The time is from 2:58 to 5:35.

The return trip on Monday will be over the same course, merely following the maps in reverse order. The distances from town to town, as well as the total length of each stage, are marked on the margins of the maps, while full distance tables are given of the six day's work in both directions.

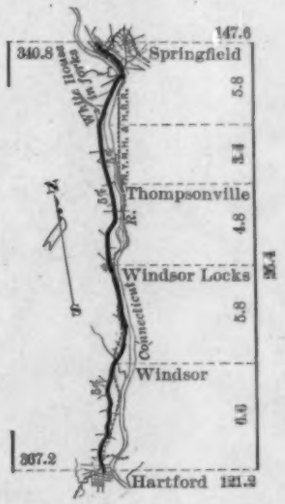
SECOND AND ELEVENTH PERIOD
Norwalk to New Haven (34.5 miles)

Minimum Time for this Period . 2 hrs. 18 mins.
Maximum Time for this Period . 4 hrs. 19 mins.

FIRST AND TWELFTH PERIOD
New York to Norwalk (44.5 miles)

Minimum Time for this Period . 2 hrs. 58 mins.
Maximum Time for this Period . 5 hrs. 34 mins.

FOURTH AND NINTH PERIOD
Hartford to Springfield (26.4 miles)



Minimum Time for this Period . 1 hr. 46 mins.
Maximum Time for this Period . 3 hrs. 18 mins.

THIRD AND TENTH PERIOD
New Haven to Hartford (42.2 miles)

Minimum Time for this Period . 2 hrs. 48 mins.
Maximum Time for this Period . 5 hrs. 17 mins.

SIXTH AND SEVENTH PERIOD
Worcester to Boston (44.6 miles)

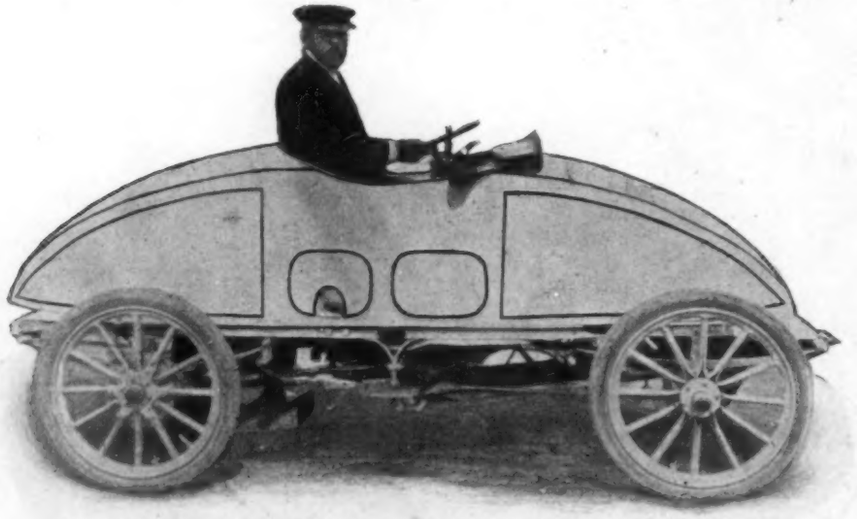
Minimum Time for this Period . 2 hrs. 58 mins.
Maximum Time for this Period . 5 hrs. 35 mins.

FIFTH AND EIGHT PERIOD
Springfield to Worcester (52 Miles)

Minimum Time for this Period . 3 hrs. 28 mins.
Maximum Time for this Period . 6 hrs. 30 mins.

THE SERPOLLET WHALE

The Serpollet "Easter Egg," made famous by its achievements at Nice last spring, when it cut the kilometer record to 29 4-5 seconds, has given place to a new freak, more or less inappropriately known as "la baleine," or the whale. The mechanism and running gear are much the same as in the former car, but M. Serpollet has endeavored to obtain a higher speed by reducing the wind resistance, the rear end being pointed as well as the front. In the Deauville races he met with bad luck, a part of the burner breaking loose and dragging on the ground, but one of his cars, driven by Le Blon, succeeded in making the very excellent time of 27 1-5 seconds, placing it third on the list of winners. It is probable that the whale will yet be heard from before winter sets the seal on the records of 1902.



SERPOLLET RACING CAR—WHALE

VANDERBILT'S EXPERIENCES

Intrepid Motorist Tells of Striking Flying Birds and Losing a Tooth in Fast Driving—Average 51 Miles in Paris-Vienna

NEWPORT, R. I., Sept. 13. (Special Correspondence.)—William K. Vanderbilt, Jr., tells some thrilling stories of his recent experiences abroad. Three days prior to the Paris-Vienna race he was thrown from his automobile when going at the rate of 65 miles. Fortunately no bones were broken, but he was badly bruised, so much so that he was obliged to sit on pillows through the entire distance from Paris to Vienna. Leaving at 6 A. M., and arriving at 10 P. M., with 3 hours off for meals, the distance of 660 miles was covered in just 13 hours, making an average of 51 miles per hour.

Shortly after his departure from Paris on this run, the operator in the machine ahead of him was hurled many feet into the air as the result of an accident to the machinery. The man landed on his head and was picked up by the spectators. Mr. Vanderbilt says great swarms of blackbirds fill the air at times and fly so low that they cause considerable annoyance to motorists. A huge bird struck him on the chest while he was speeding about 70 miles an hour down hill, and fell dead in his lap. Another struck Henri Fournier on the nose and split it open.

Mr. Vanderbilt, in conversation with the writer, said: "See where that tooth is out," at the same time pointing to the vacant space. "Well, Foxhall Keene was ahead of me in his fast Mors and I was holding him mile after mile with my 30-h.p. Renault, when a stone flew out from under Keene's machine and struck me in the jaw."

In reference to the legal penalties, Mr. Vanderbilt said: "In case you are 'arrested,' you merely receive a notice to appear before a magistrate, and the fine only amounts to 20 cents, but it necessitates procuring a lawyer and going through more red tape than is required to hang a man in this country."

Owing to Mr. Vanderbilt's much needed rest, no automobile races will be held here this season.

A MINATURE RUNABOUT

The little carriage here illustrated is in no sense a toy, though weighing but 350 lbs.; it is a practicable road machine and has made a speed of 15 miles. The builder, Fred G. Brower, of Syracuse, N. Y., is an expert machinist and an old hand with motor cars, having built an experimental machine as long ago as 1880. This vehicle, an electric machine, was, of course, a novelty at that date. Little Miss Carrie Brower had learned to handle her father's Duryea car under his direction, and though but twelve years old, was ambitious to possess a machine of her own. As nothing of the kind is on sale, Mr. Brower undertook to construct the machine himself, making all parts except the motor. It was at first built as a three-wheeler, but afterward was changed to four wheels. The motor is of 3 1-2 h.p., and the gasoline tank holds 4 gallons.

The 45-h.p. Mercedes owned by Clarence G. Dinsmore, of the committee on foreign relations of the Automobile Club of America, won a hill-climbing contest at Sommering, Austria, on September 7, according to cable reports received in New York on Monday. The machine was operated by Mr. Dinsmore's chauffeur and ascended the 6¼-mile hill in 10:37. A Laurian Clemens machine was next, only a second behind, while a 15-h.p. Serpollet, driven by Leblon, was third. A commemorative medal will be presented to Mr. Dinsmore by the makers of the Mercedes.

GASOLINE RUNABOUT, 3 1-2 H.-P.

AUTOMATIC PRESSURE OILERS

Easily Attached Devices Which Start and Stop Feeding Oil With the Starting and Stoping of the Engine

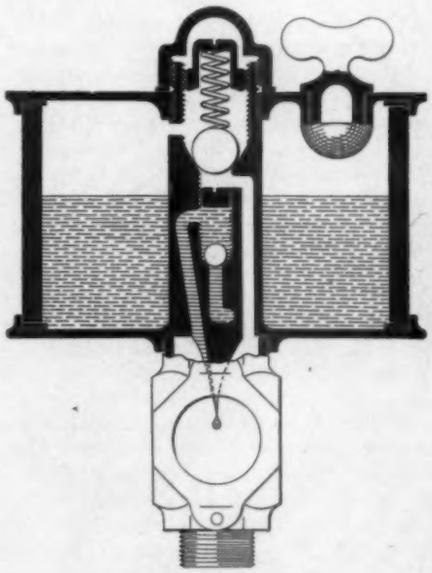
The accompanying illustrations present two patterns of the pressure lubricators manufactured by the Automatic Lubricator Co., of Toledo, O. These lubricators, while adaptable to any form of explosive motor, are especially desirable in connection with automobile engines and other parts needing lubrication, on account of their automatic action which renders unnecessary any attention relative to turning them on and off when starting and stopping the machine. Different also from the majority of automatic lubricators they are not mechanically operated, but are actuated solely by the pressure from the engine.

The sectional view of the Simplex, or single feed, oiler shows the principle upon which the devices are constructed and the general method of action. The oiler may be given its source of pressure from either the crank case or the cylinder, the only essential being to supply a fluctuating pressure. The pressure impulse trips the large upper ball valve while the pressure retained in the oil chamber then forces the oil past the small lower ball valve into the needle valve passage, down which it travels to the point where it accumulates and drips at regular intervals. The adjustment of the upper ball check valve according to the pressure is secured by regulating the tension of the spring which seats it. This is done with a screw plug underneath a cap. Original models were provided with a hand wheel for this purpose, but the present construction was adopted to save room and to prevent constant "tinkering" with the adjustment.

Being self-contained, the oiler is as readily attached as a plain gravity lubricator and occupies no more room. In fact, all patterns of the oiler are compact in construction with a view to securing as large an oil reservoir as possible without rendering the whole bulky.

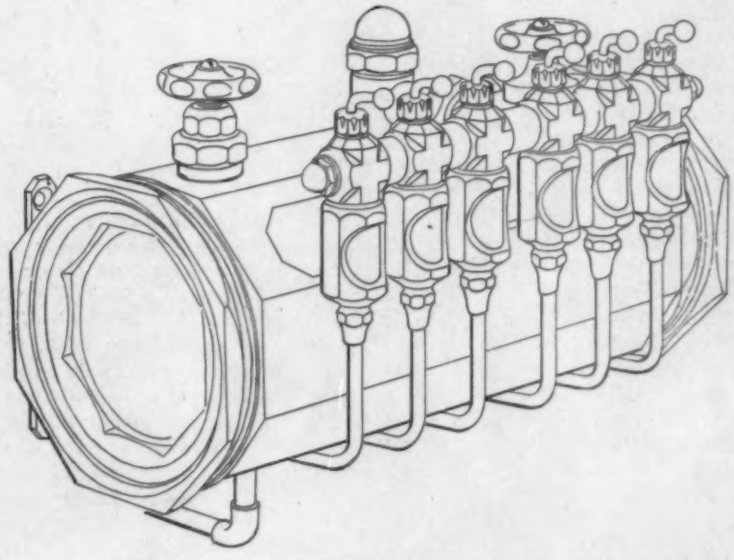
Aside from the central feature of pressure feed the lubricators have constructional detail worthy of notice. For instance, in the Simplex the sight feed is in the form of a chamber covered front and rear by flat glasses which are secured by rings readily removable in case of accident, etc. The back glass is translucent white to render the drops more readily visible. The reservoir is filled through an opening provided with a semi-spherical metal screen. All patterns are said to be air tight.

The Multiplex or multiple feed device for attachment to the dashboard operates on the same principle of fluctuating pressure. It is octagonal in shape with glass end panels. The sight feeds are above the level of the oil, and hence not likely to become clogged with sediment. There is a white background for the sight glasses. Each outlet has a separate adjustment, and the number of drops per minute for the part which is lubricated by each feed is marked above the glass. The adjusting levers used instead of the ordinary thumb screws are self-locking by means of spring catches. If desired the sight feeds can be dispensed with or attached independently near each bearing, the pipe couplings being attached directly to the adjusting blocks in the place of the sight glass frames.



Simplex Oiler

The Triplex lubricator, which is not illustrated, is essentially a Simplex oiler with two additional outlets. Where there is a closed crank chamber it is attached as ordinarily with the two side tubes running respectively to the right and left shaft bearings. When the crank chamber is open the central shank is attached to the cylinder and an extra pipe extending from the rear of the cup provides a wipe oiler for the crank. The two side tubes extend to the shaft bearings as in the first case. These branch pipes may be fitted with sight feeds or attached without as desired.



MULTIPLEX AUTOMATIC PRESSURE LUBRICATOR

AUTOMOBILE PRODUCTION IN 1900

WASHINGTON, Sept. 13. (Special Correspondence.)— The Census Bureau has in press an interesting report, devoted in part to motor vehicles. Of such vehicles, variously designated as automobiles, motor carriages, or autotrucks, 4,192 were constructed in the United States during the census year 1900, and their aggregate value, as reported by the manufacturers, was $4,899,443. These were constructed in 109 establishments. As but few of these establishments were devoted exclusively to this work, and as in many cases their operations covered only a portion of the census year, or were not continuous during that period, it was found impracticable to give statistics relating to the industry beyond the quantity and value of the product. The 4,192 motor vehicles were divided as follows: Steam carriages, 1,681, valued at $1,147,927; electric vehicles, 1,575, valued at $2,873,464; gasoline vehicles, 936, valued at $878.052.

MOTOR VEHICLES IN THE SOUDAN

The introduction of the motor vehicles into the Egyptian Soudan would be most advantageous, according to the London correspondent of the Paris *International Courier*. Vast stretches of fertile land and mineral bearing tracts are left undeveloped for want of methods of transportation to market. The country is admirably suited to the use of motor wagons, and without any great outlay the proper roads could be built. Automobiles of the stoutest construction and adapted to the transportation of merchandise in sufficiently large quantities would take the place of railroads. High-speed machines are neither necessary there nor practicable, the requisite qualities being solidity and ample capacity.

Correspondence

THE LOCAL MACHINE

JERSEY CITY, N. J., Sept. 9.—Editor THE AUTOMOBILE AND MOTOR REVIEW:—Recently a friend and myself had an experience with a gasoline vehicle which taught us not only that there are numerous unforeseen places in which to look for trouble, but also that the average local machinist is as yet hardly an expert in automobile repairing. The friend in question had purchased a second-hand vehicle which was supposedly in good condition, but upon receiving it was unable to start it. Being entirely innocent of the construction and operation of a gasoline carriage, he called for me to assist him in his difficulty, thinking, probably, that my slight experience with a steam runabout had made me exceedingly wise in the ways of all automobiles.

I examined the machine carefully before turning over the motor and discovered that his seeming difficulty lay only in the old and well-worn trouble of not having turned on the gasoline valve between the tank and vaporizer. I had little difficulty in starting the motor and we were soon on the road with the machine running nicely. Our trouble came quickly, however, as my friend, being unfamiliar with the handling of such a machine, soon managed to ditch it in an attempt to swing around a large muddy spot in the roadway. After the ditching, which shook up the machine considerably, we were unable to start it, and as we were then but a block from the establishment of a machinist, we pushed the carriage to his shop.

There was a little machine work to do in the way of straightening a bent steering knuckle and some additional tinkering such as tightening the tire lug nuts. After we had looked the machine over carefully and while the mechanic was engaged on the steering knuckle job, we tried to start the motor, but all our efforts proved futile. We tested and tried, and tried and tested, with the manufacturer's instruction book opened before us all the time. We sought every trouble mentioned in the book, but, different from the infallible resource of King Dodo's court historian, it did us no good to "look in the book and see."

We eventually left the machine over night and the next morning, which was Sunday, I ran over to the shop early with an inspiration—and a screwdriver. By way of explanation, this particular machine did not have the now common device for advancing the spark, the contact breaker cam being mounted rigidly upon its shaft. I examined this at once and tested to discover when it gave the spark and was not surprised to find that the sparking occurred near the middle of the impulse stroke. In some manner, when we ran off of the road, the two set screws which were supposed to hold the cam to its shaft, slipped, probably being loose in the first place. This allowed the cam to fall out of position and render starting of the motor impossible. With this fault corrected there was no difficulty in starting the motor, the third turn of the starting crank bringing the desired result.

For the time being all the trouble with the machine ended and its owner became once more an enthusiastic motorist. In fact, his enthusiasm brought about his second downfall, which occurred in the shape of the breaking out of some of the teeth in one of the spur pinions of the sun and planet gears in the transmission. We again sought our friend, the machinist, who, when he had removed the injured pinion, said that he could repair it temporarily by putting in two teeth, as luckily only that number had been broken out. His plan was to fasten the teeth in with a screw-threaded pin and he was willing to guarantee the job until the new pinion could be secured from the factory.

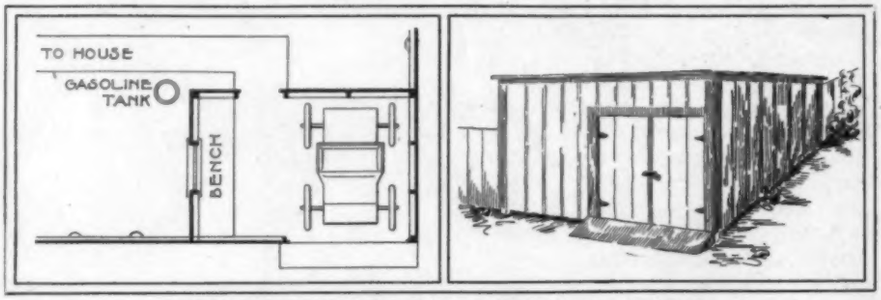
He went to work on the job and no attention was paid to his method of procedure. Our only caution was to start as slowly and gradually as possible when testing the repaired transmission. Our caution was rewarded by the suddenly given knowledge that something was wrong, so the transmission gear was again taken apart and we soon discovered that our friend, the mechanic, had, for the sake of convenience, fastened both of the new teeth in place with a single pin, which extended through the stub axle on which the gear was supposed to be loosely mounted. This fastening was made possible by the diametrically opposed position of the two broken teeth. There was, of course, no difficulty in effecting a proper reconstruction of this job and the teeth, although rather flimsily secured, held in position for nearly 250 miles of running, the shipment of a new gear from the factory not being exactly prompt.

E. E. WENTWORTH.

INEXPENSIVE AUTO STABLE

CHICAGO, Ill., Sept. 6.—Editor THE AUTOMOBILE AND MOTOR REVIEW:—The accompanying sketch and floor plan, which I trust you may be able to reproduce for illustration, show the general character of a little automobile stable which I have just completed in the rear of my residence. The stable is not a model architecturally, but I think serves as an excellent example of the cheapness with which motor vehicles may be cared for. Living in the proverbial city flat building, I could not conveniently erect a large stable, but easily persuaded the landlord to permit me to build a small structure in the corner of the back yard, which is adjacent to a wide alley.

I simply cut out the fence at the corner and built the house flush with the fence line, its dimensions being 9 by 12 ft. The front side I made 9 ft. high and the rear 6 ft. By constructing the frame work of ordinary 2 by 4-in. framing with 4 by 4-in. beams set on posts driven into the ground, and by making the walls of 12-in. boards whose cracks were covered with tight battens, the structure was quickly and inexpensively erected. The double front doors are hinged and secured by an ordinary clasp and padlock. The machine when in the stable rests crosswise of the floor near one end, leaving ample room across the other end for a work bench, in front of which there is a small window. A door in the rear wall leads to the sidewalk connecting the stable with the house. As indicated in the floor plan, the gasoline is kept in an outside tank which is an ordinary underground reservoir. The whole building cost just $74.



THE SEVENTY-FIVE DOLLAR AUTOMOBILE STABLE

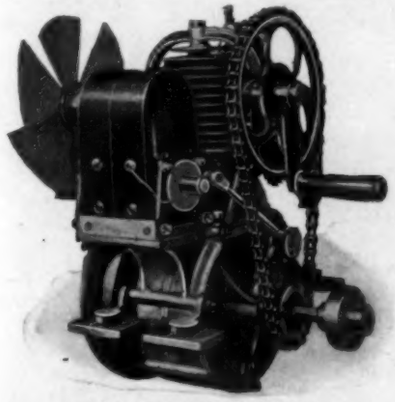
JAMES WITKINS.

A monument erected by the relations of the late Baron Bleichroeder on the spot where his fatal automobile accident took place, has been destroyed by some unknown ruffian, whom the police are endeavoring to trace.

Germany, France and England share the export trade in cycles and motors to Argentine. Motoring is growing very popular in Buenos Aires, and the splendid roads along the coast afford as good a sport as any other country can boast of.

AN AIR-COOLED MARINE MOTOR

It is generally conceded that the marine motor has reached a more advanced point of development as well as a more extended use in the United States than in England, but the one here shown, from the *Automotor Journal*, is a decided novelty. Instead of being water-jacketed it is of the air-cooled type, a small fan, driven by a flat belt from the flywheel, furnishing a cooling current of air. It is built by the



The Simms Air-Cooled Motor

Simms Manufacturing Co., Limited, and is intended for the smallest class of dinghies and open launches. The length from the front of the fan to the coupling is about 13 in., the total width is about 11 in., and the extreme height is under 16 in. The weight is but 56 lbs., and it runs at 1,000 revolutions, developing 1 b.h.p. As will be seen, a dynamo is used for the ignition. It is to be used with a reversible blade propeller.

NOTES FROM NEW LONDON

NEW LONDON, Sept. 15. (Special Correspondence.)—There is a fair prospect of the establishment in this city in the immediate future of a manufactory of power launches and motor cycles. Two young men, from Philadelphia, who desire to remain in the background until their plans are more fully matured, are in this city on business in connection with the installation of the plant. They have been in the employ of a well-known manufactory in the Quaker City, but they believe that there is an opening somewhere along Long Island Sound for the business which they have in contemplation. The advantages of New London have made an impression and they have visited the city several times looking for a suitable site. Several locations have been considered and one, a plot bordering on Shaw's Cove, the well-occupied yacht basin, appeared so favorable that they have secured an option on the property from the owner, W. H. Lynch. The only obstacle in the way of the new factory here is the indecision as to whether New London would be as good a location for their business as New Rochelle, the only other place they have under consideration, the advantage of the latter being its proximity to New York. On the other hand, New London being a yachting center, is a decided advantage in favor of the city. The proposed works will employ about 40 persons in the manufacture of gasoline motors, launch hulls, and motor cycles.

The Baker Manufacturing Corporation, of Middletown, Conn., which was started last spring to manufacture engines for automobiles and launches, is now being supplied with castings by the Brown Cotton Gin Co., of this city. Progress has been slow heretofore for the reason that satisfactory castings were difficult to procure. The Baker Corporation now expects to be in the market early next season with its automobiles and engines. The corporation has recently been organized with T. M. Russell, of Middletown, president; E. H. Wilkins, Middletown, secretary and treasurer. On the board of directors are: Joseph Merriam, of the Rockfall Woolen Co.; E. S. Davis, of Davis Brothers; J. H. Hale, of Glastonbury, and Mr. Brainard, of Portland. The gentlemen who compose the company have pledged themselves to supply a cash capital of at least $75,000 to be used in establishing the manufactory for motor cars and motors on an extensive scale as soon as the working efficiency of Herbert C. Baker's invention shall be satisfactorily demonstrated.

The Baker motor is a three-cylinder hydro-carbon, with its main shaft on a line with the axis of the cylinders instead of the transverse arrangement where the ordinary crank movement is employed. A 15-h.p. motor weighs but 250 lbs. The factory is located in the building formerly occupied by the Worcester Cycle Co., at Middletown.

LAUNCH RACES AT NEW LONDON

NEW LONDON, Sept. 12. (Special Correspondence.)—Since the recent race of motor boats at Stonington, which was decided after considerable delay in favor of the Minola, owned by Capt. Joseph Wilbur, of Quiambaug, the fishing hamlet near Stonington, owners of boats in this section have taken the racing fever seriously, the outcome being a race between the Minola and the Scat, owned by R. Ralston Reed, of Mystic, held yesterday over the same course of the previous race. All the towns from New London to Stonington were represented along the course by launches of every description and it is estimated that fully 1,000 persons occupied positions on shore near the start.

The water in Fisher's Island Sound was quite rough and a fresh breeze was blowing from the west when the boats were sent away about 4 o'clock. The race was sailed under the revised rules published in the *Rudder*, making allowance of 4 seconds a minute for horse power and 3 seconds a minute for breadth measurement. The net allowance of the Minola to the Scat was 1 second a minute.

The Minola has a 6-h.p. Lathrop motor and breadth measurement of 6 ft. 2 1-4 in. on water line. The Scat has a 5-h.p. Gray motor and breadth measurement of 4 ft. 10 in.

The course is 17 1-2 miles, with four turns. The judges were L. D. Fairbrother and John H. Hoxie, and the timekeepers were Dr. J. H. Weeks, Jr., and S. M. Randall. The Minola carried three persons, the Scat two. The official time was as follows:

	Start.	Finish.	Elapsed Time.	Corrected Time.
Minola	3:59:41	6:07:47	2:08:06	2:08:06
Scat	3:59:40	6:14:28	2:14:48	2:12:40

The Minola won by 4:16. The prize contested for was a silver loving cup.

LAUNCH AND VEHICLE MOTORS

A correspondent asks the difference between the motors used on bicycles, motor vehicles and launches; and also whether a bicycle motor can be used in a launch. Owing to the difficulty of carrying a supply of water for cooling the cylinder, the ordinary bicycle or tricycle motor is "air-cooled" by means of fins or ridges projecting from its exterior and offering a large area of cooling surface to the air. This system of cooling is inadequate in the case of large and powerful motors, and in these the cylinders are surrounded with an outer shell or "water-jacket," through which water is caused to circulate from a reservoir carried under a seat or in some other convenient place. In a launch the motor is placed low down, and even if the boat be entirely open, the sides keep off the current of air, at the same time the speed of a launch is much slower than that of a vehicle, so that the air-cooling is far less effective. Water-cooling, however, is so easily possible by means of a simple arrangement of pipes, without a special tank, that it is always adopted. We show this week a device for using the air-cooled motor in a launch, a fan inducing a current of air. It would be possible to use the ordinary bicycle motor in a small launch in this way, but without the fan, and moving at only four to five miles per hour, as compared with 15 to 30 miles in the vehicle, the cylinder could not be effectively cooled.

The steamship Kensington, due in New York within a few days, is making the trip from Liverpool with oil as fuel.

THE AUTOMOBILE AND MOTOR REVIEW

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SATURDAY, SEPTEMBER 20, 1902

MANUFACTURER AND PUBLISHER

Nothing could be more disadvantageous to the automobile interests of America than the present feeling of dissatisfaction with the publications that exist in this field. This has found expression in a confidential document, issued to the trade by the National Association of Automobile Manufacturers, a copy of which lies before us. Put forth by the representative organization of the industry, this document may fairly be taken to represent the real attitude of the manufacturers, and it is profitable, therefore, to consider its essential features.

By way of preface; our opening statement was made advisedly. For the outsider's estimate of any branch of manufacture is based largely on the character of the publications devoted to its interests. These, like public servants, in the vast majority of cases, are as good or as bad as the people who create them.

Returning to the document: It contains the results of an empirical test of the merits of the several publications now in the field and a number of anonymous letters, written in a spirit of destructive criticism. In some of these is expressed a desire to have an "official" paper to represent the industry. Two things are manifest: First, that the letter writers are actuated by the "Go on, who's afraid?" spirit, which has not even the courage of a round robin; and, second, that their several and collective intelligences have not produced one single practical suggestion for the betterment of the publications they condemn. Or is it a knowledge of the fact, that while they may be expert in the manufacture of automobiles they are merely amateurs in the difficult art of class paper production that stops suggestion? Be this as it may, the most likely way to accomplish any reform is to go at it man fashion.

The publication of a class paper is as much a matter of business as the manufacture of vehicles, the success or failure of both is governed by the same fundamental laws. To be successful for others the paper must be successful itself, and it cannot be the latter unless it has the hearty co-operation and confidence of the trade. Here is the keynote of the situation. The interests of the publication and the trade are mutual, and their association must be harmonious to produce results that are worth while.

In the earlier days of the industry, in this country, it was not a commercial possibility to publish papers that would stand comparison with those in other well established lines of effort, such as engineering, electricity or railway construction. Now, however, the auto industry has emerged from the incubator and the publications that will survive are growing with it. A manufacturer who is dissatisfied with a publication has the right to say so. In fact, it is a duty as well as a right. He need not do this anonymously, but openly and directly, stating his reasons, and in a manly way, giving the publisher the opportunity to reply. There are fewer doors with signs reading:

KEEP OUT.
This Means You!

or,

VISITORS NOT ADMITTED,

on the premises of auto publications than in the factories of the manufacturers. Is it that there is less to conceal?

As to an "official" paper. Is this eagerly awaited by those readers, present and prospective, who want unbiased and impartial news and discussion of the automobile? We trust that the leaders of the industry will realize that it is assuming a technical dignity and commercial eminence that make such a proposition detrimental.

Have the manufacturers done their full duty in the field of publicity? Have you? We shall not be as barren of suggestion as the committee's circular. Some manufacturers seem to believe that they hold an unwritten mortgage on the editorial space of a publication if they purchase space in its advertising pages. They are "small" men, mentally, of course. The small man may have a large voice, however, and when his preposterous demands are turned down, his cry of complaint may deceive those whose opinions are formed by others than themselves. His apparent object in advertising at all is to get a self-assumed right to demand editorial exploitation of something he is financially interested in, regardless of its real merit. He gets the advertising space he pays for and is not satisfied; he wants something more—something for nothing. This type of man is the first to criticise a paper that publishes similar matter of his competitors, having a lively appreciation of the worthlessness of puffs when they refer to any one but himself. Then there is another and considerable class of manufacturers who know that they have some vehicle, or appliance, or data of some performance of merit that they honestly believe a paper and its readers would like to know about. Does the manufacturer of this type co-operate with the paper to properly describe his achievements? He sends in a cheaply written conglomeration of adjectives, with some photographs that look as though they had been made by a schoolboy with his first camera, or, more likely, sends some electrotypes that would be discreditable to the workmanship of a stove foundry. He feels he has done his whole duty to himself, to the publisher, and to the readers he seeks to interest. The results furnish him with material for anonymous criticism, though he doesn't even think that his methods suggest the query: Is his workshop conducted with the same disregard of results in its output? We are glad to acknowledge that there are many to-day who have a proper conception of the respective duties of manufacturer and publisher, and who would be a distinguished acquisition in any of the great industries of the country. Their number should be larger.

Now, suggestively. Let the manufacturer stand ready to do his share; to furnish proper material—data, drawings, photographs—for publication, and, for ourselves, we say—for we have no right in the premises to speak for another—he will be met in the same spirit of betterment. He has business sense enough soon to discover for himself the publishers who are doing the right thing, and to these, if he is honest in his criticisms of to-day, he will give his moral and financial support. By so doing he may rest assured that the theory of the survival of the fittest will have a practical demonstration that will effectually settle the publication problem.

TWO DEATHS ONE LESSON

The following, from the editorial pages of the New York *Journal*, September 16, is such a fair and sensible presentation of the case that we pass it along to our readers, with the suggestion to show it to the antis:

Two women were killed on Friday last—one the wife of a Senator, the other the sister of a Representative.

To the death of the first the newspapers gave much space, with striking headlines; to the death of the second but a brief paragraph, with an inconspicuous heading.

The wife of Senator Stewart, of Nevada, whose sudden taking off the press treated sensationally, was not better known to the generality of readers than was the sister of Representative Lassiter, of Virginia.

Why, then, the marked difference in the manner of reporting the two deaths?

The explanation is that Mrs. Stewart was killed in an automobile mishap, while Miss Lassiter was killed in a runaway.

Had it been the other way about—had Mrs. Stewart perished in a runaway and Miss Lassiter in an automobile disaster— he proportion of

printed attention given to the death of each would have been reversed.

The newspaper view taken of these two shocking fatalities, happening on the same day, illustrates well the popular prejudice against the automobile—a prejudice due almost entirely to the novelty of the motor, which is bound to wear away with time and familiarity.

As a matter of fact, the automobile, when properly constructed, intelligently looked after and operated by a competent driver, is a safe vehicle, safer, in reality, than the horse-drawn carriage. The dangers inseparable from the animal's shying, falling or taking fright and bolting are all eliminated. Given a driver who knows his business—and no other kind should be allowed to handle a machine—and the automobile involves less peril than anything else that goes on wheels over the roads at high speed.

With either ignorance or recklessness at the lever the automobile is dangerous, of course—quite as much so as when ignorance or recklessness holds the reins on a spirited horse.

Indignation at wild scorchers is natural and just, and there should be the severest penalties provided for their punishment, but the prejudice that looks upon the automobile as evil in itself is all wrong and unworthy of a country which has advanced materially beyond all others because it has given welcome to invention and hailed as a public boon every new and better way of doing an old thing.

RACES AT MINNEAPOLIS

MINNEAPOLIS, Minn., Sept. 13. (Special Correspondence.)—The first automobile speed contest held in this city took place at the Minnehaha Driving Park this afternoon. It was attended by 1,000 spectators, who showed considerable interest in the new sport, although the events were not exciting. The French machine owned by Thomas H. Shevlin, which was entered for the 15-h.p. race, was not in condition to start.

The first event, a 5-mile race for Rambler machines only, was won by M. E. Clark in 13:52 1-2, against six competitors, who were badly strung out at the finish. Mr. Wood was second, L. H. Fawkes third, Walter Hudson fourth, Claude Lackey fifth, and C. E. Dutton sixth.

Ralph Bagley, in a 4-h.p. Oldsmobile, captured the prize in the 5-mile race for 7-h.p. machines, winning in 16:37 1-2. T. Anderson and Mr. Wheeler drove fast machines, and Wheeler had a big lead in the first lap, but something went wrong with his motor and he finished third, with Anderson second, Dr. Jones fourth, and George Moore fifth.

The 1-mile standing start dash for Ramblers only, went to Mr. Andrews in 2:48 1-4, with Claude Lackey second, M. E. Clark third, G. A. Thomas fourth, L. H. Fawkes fifth, Mr. Rose sixth, and Mr. Martin seventh.

The 10-mile flying start race for 15-h.p. machines was won by Mr. Bennett, in 20:17, with Harry Wilcox second.

John Nilsson, on a Holley, captured the 5-mile motor cycle race in 8:42 1-2, from Frank Burscher, second; Tom Bird third, B. Bird fourth, Wagner fifth, Schramm sixth, Dockery seventh, and Yates eighth.

The meet was a success in every way and will probably lead to the holding of similar events in the future.

WINTON SMASHES RECORDS AT THE CLEVELAND RACES

Last Year's Record of 11:09, Made by Winton, Cut to 10:50 by His New Bullet in Racing With a Mercedes Car—Reappearance of the Baker Electric Torpedo—Track Fast and Weather Fine

CLEVELAND, O., Sept. 16. (Special Correspondence.)—The race meet of the Cleveland Automobile Club at Glenville to-day proved a complete success, the long program with its hotly contested races giving good sport to the large assemblage of spectators, among whom were many motorists from other western cities. The chief interest centered on the new Winton "Bullet," which was tried for the first time in a race, breaking the 10-mile track record made last year by Mr. Winton at Detroit. The new Mercedes-Simplex of H. S. Harkness, which was seen last month at Brighton Beach, made a fitting opponent for the "Bullet." In the 5-mile race for gasoline cars under 2,000 lbs., Mr. Harkness was allowed to enter without weighing and was declared the winner, as below, but a subsequent weighing of the car showed it to be up to the 1,000 kilos. limit (2,200 lbs.), and it was disqualified, the first prize going to C. B. Shanks in a Winton. The Baker Torpedo, rebuilt after the smashup of last spring, ran an exhibition mile in 2:07.

The new record of the Bullet, 10:50 for 10 miles, cuts 19 seconds from the record made on the Grosse Point track last fall by Mr. Winton.

The events and winners were as follows:

Five Miles.—Steam, all weights; silver cup.—Rollin H. White, Cleveland (White), first; John McDonald, Geneva (Geneva), second; L. E. Hoffman, Cleveland (Hoffman), third. Time by miles, 1:48 1-2, 4:02, 6:18 3-4, 7:55 1-2, 9:53 1-2.

Five Miles.—Gasoline, 1,000 lbs. and under; silver cup.—H. S. Moore, Cleveland (Elmore), first; J. D. Dickson, Cleveland (Cleveland), second; George W. Dunham, Cleveland (American), third. Time by miles, 2:26 3-4, 4:03 3-4, 6:51 1-2, 9:04 3-4, 11:19 1-2.

Five Miles.—Gasoline, 2,000 lbs. and under; silver cup.—H. S. Harkness, New York (Mercedes), first, (disqualified); C. R. Shanks, Cleveland (Winton), second; Percy Owen, New York (Winton), third. Times by miles, 1:24 1-2, 2:42 1-2, 3:58 1-4, 5:13 3-4; 6:32 3-4.

Three Miles.—Electric, all weights, silver cup.—Walter Baker, Cleveland (Baker), first; W. M. Wright, Cleveland (Waverly), second; C. E. Denzer, Cleveland (Baker), third. Times by miles, 2:08 1-4, 4:03, 5:54 3-4.

Ten Mile Handicap (for winners and seconds in preceding races 1, 2, 3, and 4); silver cup.—Rollin H. White, Cleveland (White), first; Percy Owen, New York (Winton), second. Time, 14:59 1-2.

Ten Miles, Open.—Alexander Winton, Cleveland (Winton), first; H. S. Harkness, New York (Mercedes), second; L. P. Mooers, Cleveland (Peerless), third. Time, 10:50.

Australian Pursuit.—Alex. Winton, Cleveland (Winton Bullet), first; H. S. Harkness, New York (Mercedes), second. No time given. In second mile Winton covered the mile in 1:02 1-4; former record, 1:06 2-5., by Alex. Winton, Detroit, October 24, 1901.

Ten-Mile Handicap.—Percy Owen, New York (Winton), first; Paul Deming, Cleveland (White), second. Time, 13:34.

Two Hundred Yards (Obstacle Race).—R. H. Gilbert, Cleveland (Locomobile), first; Walter Baker, Cleveland, (Baker), second. Time, 49 seconds.

Special Race, 5 miles to beat 6:44.—Rollin H. White, Cleveland (White), won. Times by miles, 1:24 1-4, 2:44 1-2, 4:03 3-4, 5:22 1-2, 6:43.

RACING AND SHOW FIXTURES

Detroit Automobile Racing Association Race Meet, Grosse Point Track	September 19-20
Rhode Island Automobile Club Race Meet, Narragansett Park, Providence	September 24
Massachusetts Automobile Club Race Meet, Readville Track, Boston	September 26-27
Chicago Automobile Club Race Meet, Joliet, Ill.	September 27
Automobile Club of America Reliability Run, New York-Boston-New York	October 9-15
Paris Automobile Show	December 10-25
London Automobile Show, Crystal Palace	December 30, January 7
New York Automobile Show, Madison Square Garden	January 17-24
Chicago Automobile Show, Coliseum Building	February 14-21

An engineer has been appointed to plan the approaches and superintend the construction of a proposed bridge over the Raritan River between Perth Amboy and South Amboy, the Middlesex freeholders having adopted the plans and decided to have the bridge finished by the opening of the next summer season on the New Jersey coast. The bridge will shorten by twenty miles the road from New York to Atlantic City, cutting off a long detour to New Brunswick. The bridge also marks the first step toward completing a direct macadam drive from Jersey City to Atlantic City.

A sensation was created in Jamestown, N. Y., on September 9, when Frank Jenks, attorney for the Society for the Prevention of Vice, made announcement to the effect that a raffle for a motor vehicle for which 25,000 tickets had been sold at 10 cents each, by the local lodge of Elks, should not take place, and that the vehicle must be confiscated and sold for the benefit of the poor fund of the county. The district attorney has been appealed to to stop the drawing. Among the ticket holders are the district attorney himself, the county judge, the chief of police and almost every other official.

THE JAHRMARKT PARADE

Motor Feature of Milwaukee Carnival Attracted Much Attention Especially from Ruralities—All Machines but One Were Gasoline

MILWAUKEE, Wis., Sept. 16. (Special Correspondence.)—The parade of motor vehicles proved one of the most attractive features at the Jahrmarkt held in this city last week. Among the thousands who viewed the parade were many from the rural districts who came for the carnival and who had never before seen such an occurrence. Hundreds remarked after the parade that the automobile was not such a bad thing as they have been led to believe. Dealers were kept busy the next day showing vehicles to prospective customers. Motor bicycles proved an interesting part of the procession.

Miss Dorothy Williamson, daughter of Dr. J. L. Williamson, led the parade in an Oldsmobile. Following came a band in Warren Johnson's large motor truck. Theodore Jonas came next in his Darracq tonneau. Others who were in the parade and their machines are as follows:

August Grau, Haynes-Apperson; Dr. Joseph Gries, Haynes-Apperson; A. H. Czerwinski, Haynes-Apperson; Fred Rugee, Haynes-Apperson; August Mueller, Haynes-Apperson; E. W. Olds, Oldsmobile; Dr. W. H. Williamson, Oldsmobile; Dr. I. O. Newell, Oldsmobile, W. H. Pipkorn, Haynes-Apperson; Odenbrett & Bates, Winton; Stephen Schweitzer, Oldsmobile; John Kempfer, Oldsmobile; Dr. Ralph Elmergreen, Haase; Dr. Sayle, Haase; L. Moths, Oldsmobile; George Strachota, Oldsmobile; Orlando Weber, Toledo.

The first prize was secured by Miss Williamson. Mr. Grau was awarded the second prize and W. H. Pipkorn the third.

The following were in the parade of motor bicycles: John Carpenter, of Waukesha, and wife, on a Merkel tandem; W. G. Merkel, Merkel; Albert Bright, Mitchell; Paul Huebner, Holley; Charles Monday, Mitchell. Mr. and Mrs. Johnson won first prize and W. G. Merkel second.

THE PRESIDENT'S RIDE

NEW HAVEN, Conn., Sept. 15. (Special Correspondence.)—D. W. Comstock, of Comstock, Cheny & Co., of Ivoryton, made what is said to be a record ascent of Mt. Washington the other day. With N. D. Miller he rode in his 16-h.p. Winton to the mountains, via Hartford, Boston, Portsmouth, N. H., and North Conway, in three running days. On Wednesday morning the ascent of the mountain was made. The run from the site of the old Glen House to the top was made in less than 50 minutes, the distance being 8 miles and the rise nearly 5,000 ft. The descent was made early in order to avoid teams. The machine came down in 40 minutes. It takes a team more than 3 hours to make the ascent. Mr. Cheney's ascent is said to have been the seventh made by an automobile, and the quickest and most successful, in that it was made without a stop. On the home trip a run of 140 miles from Bellows' Falls to Ivoryton, was made in one day.

Hartford's new City Directory, just out, illustrates President Roosevelt's visit to that city on August 22 last. These photographic views, it is said, give for the first time in history, the pictures of a President driven in an automobile instead of a vehicle drawn by horses. The automobile was furnished by the Hartford Electric Vehicle Co., and the police squad attending it and outriding was mounted on Columbia chainless bicycles made in that city.

SYRACUSE AUTOMOBILE PARADE

Twenty-One Vehicles in Illuminated Procession Draw Thousands of Spectators—Held in Connection With State Fair

SYRACUSE, N. Y., Sept. 15. (Special Correspondence.)—The parade of the Automobile Club of Syracuse, which took place on Thursday night through the principal streets of the city, as one of the entertainments which the city provided during the State Fair, was viewed by a crowd variously estimated in numbers at from 15,000 to 20,000. So much interest in automobiling has not been awakened in a long time. There were twenty-one vehicles in line. The parade started at 7.30 o'clock. T. D. Wilkin, president of the club, led the procession in his steam carriage. Every machine carried the lights required by the state law and the vehicles were handsomely decorated. The most strikingly decorated machine was the large Winton owned by H. W. Smith, which was covered with a huge Japanese parasol from which dangled numerous Japanese lanterns. The national colors were interwoven in the wheels. Secretary Elliott and Mrs. Elliott rode in a Century Stanhope, the only electric machine in the parade. There were seven Century machines in the procession. The H. H. Franklin Mfg. Co. had three machines and the Syracuse Automobile Co. and the Lyman C. Smith, the typewriter manufacturer, was in the parade in his big Winton touring car. Alexander T. Brown, H. H. Franklin and John Wilkinson turned out in Franklin machines.

Others in the parade were: T. D. Wilkin, William Van Wagoner, George Larabee, H. W. Smith, F. G. Maybee, Mrs F. G. Maybee, A. P. Snow, W. H. Bex, William Sweet, J. A. Seitz, J. J. Young, H. K. Kelsey, of Cortland, F. C. Brower, W. S. Brown, C. W. Frank, G. K. Betts, and W. C. Lipe.

Mr. Elliott suggests, and will make an effort to have his suggestions carried out, that the State Fair commissioners next year designate an "automobile day" and hold races at the State Fair track in the afternoon and a big parade in the city in the evening. Mr. Elliott is now arranging to hold a brake contest on West Genesee street or the Boulevard. Now that the weather has become settled, some club runs will be held.

KING'S CUP RACE IN LISBON

The details of the winning of the King's Cup at Lisbon, Portugal, on August 17, are contained in a letter received last week from R. H. S. Abbott. The course was a mile circle on a side hill, an old deserted horse track with a little straightaway down hill from the tape and a long turn to the left three-quarter turn and a stiff grade up to the tape. Entered against Mr. Abbott's Locomobile in the 10-mile were a 7½-h.p. Darracq and a 12-h.p. Panhard. Abbott had one passenger, for ballast, while the other machines carried only the drivers. Abbott drew the outside position, but jumped to the inside before the heavy gasoline cars got under way. At the end of 5 miles he lapped the Darracq in front of the grandstand and then lapped the Panhard. He finished nearly two miles ahead of the latter. His time for the 10 miles is in dispute, one timer claiming it was 15½ and another 17½ minutes. It was on the grades that the steamer showed superior speed. When the event finished Mr. Abbott was escorted to the royal stand and presented with a box containing a large silver and glass cup offered by the Portuguese government.

ASCENT OF MT. WASHINGTON

NEW LONDON, Conn., Sept. 15. (Special Correspondence.)—Something of an automobile record, at least among motorists of eastern Connecticut, is credited to D. W. Comstock, of Ivoryton, who, accompanied by N. D. Miller, also of Ivoryton, left home two weeks ago Saturday morning in a 15-h.p. Winton touring car, and, passing through Hartford, reached Boston, a distance of 137 miles, the same day. From Boston they went to Portsmouth, N. H., thence to Portland, Me., and then by way of North Conway to the site of the old Glen House, which they reached Tuesday evening. Remaining there over night, they made the ascent of Mount Washington early Wednesday morning in record-breaking time, without a stop, except at the Half-way House to pay toll.

The run from the old Glen House to the

top of the mountain was made in less than 50 minutes, the distance being 8 miles and the rise nearly 5,000 ft. Breakfasting at the summit, they made ready to return immediately in order to avoid teams. The descent was made in 40 minutes. The average time consumed by a team in making the ascent by the same road is from 3 1-2 to 4 1-2 hours. This was the seventh ascent of Mount Washington by automobile, and the quickest.

From the Glen the party returned by way of Bethlehem, Profile, Plymouth and White River Junction, thence following the Connecticut River back to Ivoryton. The trip from Bellows Falls, Vt., to Ivoryton, about 140 miles, was made in one day. The entire distance covered in the 8 days' absence was more than 700 miles.

ON THE ARDENNES CIRCUIT

The accompanying pictures were taken in connection with the recent "Circuit des Ardennes," in Belgium, and illustrate varying incidents of the road. The view of the flock of sheep was taken from a moving car just as it encountered this embarrassing obstacle, the arm of the driver showing at the left and his hand on the steering wheel at the right, with the top of the lamp visible in front. The second picture tells its own story, as familiar here as abroad, but the costumes of the lady, the two men and the child, are unfamiliar here as yet.

A NERVY MOTORIST SAVES LIVES

One of the coolest and most courageous actions in connection with an impending accident occurred during the Elks' Carnival in Seattle, Wash., recently. At about noon, as related by the *Post-Intelligencer*, Ralph S. Hopkins was riding leisurely in his automobile up Second Ave., which was densely crowded with sightseers waiting for the appearance of the carnival procession. Suddenly the crowds commenced running in front of the machine. Puzzled at their actions, Mr. Hopkins turned around, looking for the cause of the excitement. An express wagon, drawn by a team of large horses, was bearing directly down on the panic stricken crowd. Frightened by something, the horses had escaped from the control of their driver and were running away.

Mr. Hopkins brought his automobile to a quick stop and set the brakes hard. Then he turned and watched the runaway, in whose path he had deliberately placed himself. He hoped to be able, by means of the weight of his machine, to check the flying team and save the densely packed crowd in front.

As he had hoped, the tongue of the wagon struck the rear of his machine, bringing it to a sudden stop. The horses, partially freed from the harness, sprang forward, one on each side of the machine. This enabled him to grasp their bits and hold them until bystanders succeeded in quieting them.

In their flight the horses had managed to break loose from the harness, and just as the wagon was brought to a stop had jerked the driver and another man from the seat directly under the front wheels of the heavy vehicle. Had the wagon gone a foot farther they would undoubtedly have been killed. By his prompt and courageous action Mr. Hopkins not only saved the lives of the men on the wagon, but probably of many in the crowd, which packed the street in front of the automobile.

Mr. Hopkins is clerk of the United States District Court, and is well known as an automobile enthusiast.

VIEWS SHOWING SOME OF THE INCIDENTS OF THE RACE ON THE ARDENNES CIRCUIT

WASHINGTON RACE PLANS CHANGED

WASHINGTON, D. C., Sept. 12. (Special Correspondence.)—The District commissioners have vetoed the proposition to hold an automobile race on Pennsylvania Avenue during the week of the encampment of the Grand Army of the Republic, from October 6 to 13, on the ground that it would be dangerous in view of the great crowd that would throng the street to see the contest. The commissioners sent for the secretary of the encampment committee and informed him that while the floral parade of automobiles was approved by the municipal authorities, the motor race on the public streets was impossible to consider.

As the commissioners have refused the request that races be allowed on the streets, a suggestion has been made by Chairman Brown, of the automobile committee, that the contests be held at Benning's race track, and has been favorably received by the general committee, so that steps will be taken in this direction at once. A number of prominent motorists in various parts of the country are interested in the proposed events.

REWARDS FOR INFORMATION

WASHINGTON, D. C., Sept. 6. (Special Correspondence.)—The District Commissioners have decided that strenuous measures must be taken to stop the unlawful speeding of automobiles on the streets of the national capital, and especially upon the roadways of Rock Creek Park. The engineer commissioner has in mind a scheme which his associates will probably accept. He suggests that rewards be offered by the authorities for the arrest or information leading to the arrest and conviction of the violators of the speed law. Arrangements will be made by which additional policemen will be stationed in the park to watch for motorists of the reckless type, and the judges sitting in the police court have signified their intention of punishing the offenders, no matter who they may be, to the extent of the law. Any one who can secure proof that an automobile was illegally driven on the streets or through the park can claim the rewards that will be offered.

BURNED VEHICLE CAUSES SUIT

Suit has been brought against the Providence Automobile and Traction Co., of Providence, R. I., by Nelson C. Rice, of that city, to recover $3,000 for alleged damages. The case is instituted through Florence Rice, Nelson being a minor. It is alleged that a motor vehicle at Roger Williams Park, in which vehicle Nelson was riding on July 13 last, caught fire from one of its appliances and that Nelson was severely burned about the legs, arms, back and shoulders. In this accident several other persons were injured, one so severely that death ensued.

one so severely that death ensued. It is alleged that there was negligence on the part of the company in not providing a safe machine. This suit is the first entered as a result of the accident.

LOCAL LEGISLATION

The motor vehicle ordinance which was introduced in the Omaha council may not be favorably reported, as there is an existing law that fixes the maximum speed of all vehicles at 10 miles, which was the main feature of the new ordinance. The other provisions referred to the carrying of lights and observance of the rules of the road. The matter of licensing operators of vehicles will be discussed at the next meeting of the Omaha Automobile Club.

On August 21 the board of works of Newark, N. J., passed a new motor vehicle ordinance which limits the speed inside the city limits to 8 miles.

The South Orange, N. J., board of trustees has under consideration a new automobile ordinance introduced by Trustee Walter I. McCoy, a New York lawyer. It limits the speed to 15 miles, provides that the motorist must slow down if a horse shows fright and come to a full stop upon signal of the driver, makes obligatory the carrying of lighted lamps at night, requires an alarm capable of being heard at 300 ft. distance, and provides a fine of $50 or imprisonment for 10 days or both as a penalty for the first offense, $100 fine and 10 days' imprisonment for the second infraction, and $200 fine and imprisonment for not less than one day nor more than 30 days for a third violation.

The Bedford County board of freeholders in Pennsylvania passed a new ordinance on August 21, limiting the speed of motor vehicles to 12 miles in the county and to 8 miles when passing through towns. When approaching or passing teams the speed must be reduced to 5 miles and warnings must be sounded 100 yards distant from crossroads. A penalty not exceeding $50 fine or imprisonment not to exceed 15 days is provided for violation.

The Bloomfield, N. J., board of aldermen passed an ordinance on August 18 prohibiting any speed in excess of 8 miles within the town limits, and providing a fine of $20 or 30 days' imprisonment as penalty for infraction.

At a meeting of the common council of Racine a few days ago, an ordinance was introduced limiting the speed of automobiles and motor cycles to 6 miles on the city streets. Bells and lights must be carried. Penalty for failure to comply with the law is $10.

An impossible resolution has been introduced in the board of freeholders of Middlesex County, N. J., providing for the exclusion of motor vehicles from the public highways of the country between the hours of 10 A. M. and 4 P. M. It is not thought that the necessary two-thirds vote of the twenty-four members of the board can be secured to pass the resolution, and in case of success it is held by the attorney for the board as well as by officers of the leading motor vehicle organizations that such a law would be unconstitutional.

Mayor James M. Seymour, of Newark, has vetoed the ordinance recently passed to regulate the use of motor vehicles, disapproving the measure because it provides heavier penalties for fast automobile driving than the previous ordinance limiting the speed of electric street cars and horse drawn vehicles provided. The mayor also finds the ordinance illegal because it usurps a right of the State Legislature in providing for the registration of motor vehicles with the county clerk, who is not a city officer.

The mayor of Waukegan, Ill., has vetoed an ordinance passed recently by the local council limiting the speed of motor vehicles to 6 miles.

An ordinance relative to the weight of steam trucks and wagons and the width of the tires of such heavy vehicles has been introduced in the board of works of Newark, N. J.

NOTES OF GENERAL INTEREST

A country doctor who made a flying trip to New York remained long enough to relieve himself to a reporter of the statement that he imagines it will be a long time before motor vehicles will be adopted by physicians whose practice is largely in the rural districts. "When we are called," he said, "we've got to get to the patient at all hazards. If I start on a five-mile run and my automobile breaks down when half the distance is traversed, how could I get on in a hurry and where could I get the machine fixed up if it was in need of repair? Horses sometimes break down on the road, or something may happen to the wagon or harness, but that is not so serious, for any farmer will let you have horse or wagon or harness, or all three, if necessary." Why, we are constrained to inquire, can the farmer not let the physician motorist have a horse and buggy as well if his machine gives out? It reminds one of the negro who was afraid to travel on the water "because if a train gets wrecked there you are, but if a boat sinks, where are you?"

Greeley, Col., is progressive. E. W. Langtry, chief of the fire department, owns an automobile, and when there is an alarm of fire he hitches the town jumper at the rear of his machine and is at the scene of the conflagration in the twinkling of an eye. This not only saves the firemen from pulling the cart, but also saves much time in transit and permits the volunteer firemen to hasten directly to the fire, where the chief meets them with the outfit for fighting the flames. So the utility of the motor vehicle expands.

TO STANDARDIZE RIM SECTIONS

The N. A. A. M. Will Try to Secure the Adoption of Uniform Sections for Double-Tube Tires—Four Active Members Admitted

At a meeting of the executive committee of the National Association of Automobile Manufacturers, held last Tuesday, it was decided that the association, in addition to working for the adoption of a standard for rim lugs and spoke holes, will at the same time endeavor to secure a standard of rim sections for double tube tires. As at present made, the detachable tires are not interchangeable on their rims, and some of the rims are not even of the same shape on the two sides. The intention is to secure the adoption of standard sections.

Four new active members were admitted at the same meeting. The E. R. Thomas Motor Co., of Buffalo, formerly an associate member, was elected to active membership, as were also the White Sewing Machine Co., of Cleveland, O.; the Standard Welding Co., of Cleveland, and the Meteor Engineering Co., of Reading, Pa.

Interest in Edison Battery Bulletin

The great interest the trade takes in the proposed Edison battery and the extent to which the manufacturers evidently feel that the premature and exaggerated newspaper reports concerning the nickel-steel battery have injured the electric vehicle industry, are indicated by the fact that members of the N. A. A. M. have already applied for 3,000 copies of Bulletin No. 4, recently issued by the association, containing a reprinted statement by Thomas Edison, originally published in the *North American Review* for July, together with a letter of comment upon it by a member of the association. Other requests for copies of the bulletin are still being received by Assistant Secretary Unwin. The bulletins are furnished to members at cost.

The St. Louis Exposition

The association has decided to obtain and furnish to members all the information possible relative to the Louisiana Purchase Exposition, to be held in St. Louis from April 30 to not later than December 1, 1904. Circular No. 1, issued by the Department of Transportation of the Louisiana Purchase Exposition, states that adequate arrangements will be made for still exhibitions of motor vehicles and also for testing actual operation and speed. The transportation building, in which the automobiles will be given space, is to be rectangular, 525 by 1,300 ft., and all the exhibits will be on the ground floor and in the main building. The exposition also asks the co-operation of all interested in marine work, from a naval or commercial standpoint, or as a means of recreation, for the purpose of making a representative display. Correspondence is solicited. There is to be no charge for display space and all arrangements regarding power, light, etc., are of liberal character. Blank applications for space will be sent upon application. The automobiles will be included in Group 72, Department G, Transportation Division, which also includes bicycles, carriages and wheelwrights' work. Automobile and motor cycles will be in Class 455; bicycles and velocipedes in Class 456; detached parts, material and inventions pertaining to carriage building, wheelwrights' work, automobiles or cycles, in Class 457.

A few more applications for space at the London show have been received at the headquarters of the National Association.

A NEW SYRACUSE ENTERPRISE

SYRACUSE, N. Y., Sept. 8. (Special Correspondence.)—A new automobile and motor cycle manufacturing company is being promoted here. It is planned to manufacture automobiles, motor cycles, running gears, parts and coils. The automobiles will weigh from 500 to 2,000 lbs., and will retail from $500 to $2,000. There will be a light runabout and a heavy touring car. Gasoline will be the motive power. The machines will be built on the French lines. The motor cycle will weigh 75 lbs. and will have a 2½-h.p. motor and a 6-qt. gasoline tank. It is not an experimental machine, but has been tested for two years.

THOMAS MOTOR CO. TO ENLARGE

An interest in the E. R. Thomas Motor Co., of Buffalo, has been secured by D. Miller, a Chicago capitalist and first vice-president of the Chicago, Burlington & Quincy Railroad Co., and the capital of the company will be increased as required. Mr. Miller has been elected vice-president of the E. R. Thomas Motor Co. The Thomas plant will at once be enlarged and the capacity increased to 1,500 motor vehicles and 1,000 motor bicycles per annum. The company hopes to have half of these quantities of each complete and ready for delivery before the opening of the season. In addition to these changes, the E. R. Thomas Motor Co. will, on October 1, absorb the Buffalo Automobile & Auto-Bi Co., a subsidiary company organized in the summer of 1901 as the Auto-Bi Co. to take over the motor bicycle business of the Thomas Co., and changed in name to the present style in December, when the company began the manufacture of complete motor vehicles. All the products of the two companies will hereafter be marketed by the E. R. Thomas Motor Co.

TO MAKE THE READING STEAMERS

The manufacture of the Reading steam vehicles, formerly made by the Steam Vehicle Co. of America, against which a petition in involuntary bankruptcy was filed in June, is to be continued by the Meteor Engineering Co., which has been chartered by the State of Pennsylvania with a capital stock of $85,000, and taken over the entire plant of the former company at 753 and 755 Cherry St., Reading, together with all the patent rights, etc. The stockholders of the Meteor company held a meeting in the Board of Trade rooms on September 5 and elected officers and directors as follows:

President, E. W. Alexander; vice-president, J. Milton Miller; secretary and sales manager, E. S. Youse; treasurer, D. P. Schlott; general manager, I. D. Lengel; directors, E. W. Alexander, D. P. Schlott, E. S. Youse, W. T. Hain, O. S. Grieger, M. D. Hunter, and J. Milton Miller.

Stock subscriptions to the Meteor Engineering Co. are due and payable on September 15, by which date it is intended that the plant shall be in full operation again.

NEW YORK STATE FAIR EXHIBITS

SYRACUSE, N. Y., Sept. 13. (Special Correspondence.)—The State Fair of this week was the largest in the history of the organization and was a great benefit to every automobile company in the city, including those who did not exhibit as well as those who did. The trade excursion conducted by the Chamber of Commerce brought into the city large numbers of business men, many of whom visited the automobile companies. Those who had exhibits on the Fair grounds made several sales and came away with a list of names upon which they will work in the future.

The most elaborate exhibit at the Fair was that of the Stearns Steam Carriage Co., which was in charge of A. W. Perry. A trap, a doctor's carriage, and a semi-touring car attracted the most attention. The Syracuse Automobile Co. had Oldsmobiles and Murray, Waverley and Locomibile machines on exhibition. One of the machines was tipped up so that all the machinery could be seen. The H. H. Franklin Co. had one of its machines finished in red on exhibition.

C. F. Frank exhibited a Pierce motorette, and the Buffalo Gasoline Motor Co. dsiplayed one of its Buffalo motors. The Century company has orders for four steam surreys to be used on mail and stage routes in Texas. Its new gasoline runabout will be out in a couple of weeks.

TRADE BREVITIES

The Fisher Motor Vehicle Co. has leased the entire three-story brick building on Fourteenth St., Hoboken, N. J., in which it leased one floor two years ago. It took full possession of the two upper stories on September 15, increasing its facilities in order to rush work on its orders, both domestic and foreign. It recently received an order from London for ten gasoline-electric omnibuses to be used by a London stage company. These will be similar to a sample twelve-passenger 'bus sent over some time ago and now in use there.

An international exhibition of arts, sciences and industries is to be held in Melbourne, Australia, during November and December, 1902, and January, 1903. It is to be conducted by private enterprise. All communications as to space should be addressed to John A. Joubert, secretary, the Australian Federal International Exhibition, 229 Collins St., Melbourne, Victoria.

Trustees of the New England Electric Vehicle Transportation Co. will soon declare a dividend in liquidation of $1 per share. The final dividend in liquidation is not expected to be in excess of 25 cents. The above dividend of $1 will make a total of $3.50 per share on 225,000 shares.

Many applications for space have already been received by the management of the international motor vehicle show to be held in Paris, France, beginning on December 20, according to cable dispatches. Early application is necessary to secure the admission of exhibits.

Mathews and Willard, manufacturers of motor vehicle lamps in Waterbury, Conn., last week filed a voluntary petition in bankruptcy.

Pratt and Whitney, machine toolmakers, of Hartford, Conn., are erecting a four-story brick office building at the corner of Flower St. and Capitol Ave., Hartford.

The Mobile Transportation Co., organized to operate a line of steam vehicles between several towns in Gloucester County, Pa., expects to make the first trip in a few days.

The Fournier-Searchmont Automobile Co., which is removing its manufacturing plant from Philadelphia to Trainer Mills, Pa., has decided to retain its business office in Philadelphia and has now installed itself in Rooms 503 to 507 in the North American Building, where communications should be addressed.

The G & J Tire Co., of Indianapolis, has instituted proceedings against the Diamond Rubber Co., of Akron, O., in the United States Circuit Court, Southern District of New York, for alleged infringement of the G & J tire patents.

The new factory of the General Automobile & Mfg. Co., successor to the Hansen Automobile Co., of Cleveland, O., is located at 1312 to 1330 Hamilton St., that city.

The Upton Machine Co., of Beverly, Mass., has purchased a large manufacturing plant in Beverly and will make it its business headquarters, having gone into the manufacture of complete vehicles for pleasure and business purposes, in addition to its transmission gear and gasoline motor business.

NEW ENTERPRISES

Certificate of the payment of one-half the capital stock of the Smith Storage Battery Co., of Binghamton, N. Y., was filed August 11. The capital of the company is $100,000. The present quarters of the company are on State Street, but it is stated that a factory will be built for the company in Binghamton or elsewhere. Those interested in the new battery state that it is well adapted for use on motor vehicles. The certificate mentioned is signed by Andrew R. Rahe, Malcom O. Smith and Thomas J. Coster, all of Binghamton.

The Portland Transit Co. has been organized in Portland, Ind., with $10,000 capital stock, with the object of operating a line of motor stages between Portland and Camden, Ind., to connect with the vehicles of the Dunkirk and Redley Mobile Transit Co. It is to be both a passenger and light freight line. The company is already in correspondence with many different firms for the purchase of suitable vehicles.

The Brandenburgh Wagon Co. has been incorporated under the laws of New Jersey, with $5,000, for the purpose of manufacturing motor vehicles. The incorporators are William L. Glorieaux, George E. Brandenburgh, C. William Pfiel, Henry Berefeld and Benjamin F. Jones.

The Automobile Co., of Washington, D. C., has filed articles of incorporation in Camden, N. J., capital stock, $100,000, for the purpose of manufacturing and operating motor vehicles. The incorporators are W. C. Keller, A. J. Kline, R. H. Shindel and W. B. Walcott.

The Magnolia Automobile Co. is preparing to establish a motor vehicle factory in Riverside, Cal. A new plant is to be built at Sixth St. and Franklin Ave. A. W. Miller is to be president of the company and W. L. Moreland the mechanical engineer and superintendent.

The Wilmington Wheel Co., at Elsemere, Del., is preparing to engage in the manufacture of motor vehicles. At present it has a large business in rubber tires and repair work.

Hayes and Dunn are preparing to open a new storage and repair station on Fifty-eighth St., near Madison Ave., New York.

The Syracuse Automobile Co., of Syracuse, N. Y., has taken the agency for the Murray car.

BUSINESS NOTES

TRIP IN A DYKE CARRIAGE.—A round trip from Centralia, Ill., to St. Louis, Mo., a total distance of 165 miles, has been completed by Dr. C. L. Morey and H. T. Cunningham, of Centralia, in a machine built by themselves from A. L. Dyke's No. 1 outfit of parts. The tourists left Centralia on Tuesday morning and arrived in St. Louis the same afternoon. Wednesday they spent with Mr. Dyke, and, leaving St. Louis on Thursday, noon, arrived home in the evening. The roads were rough and hilly, but they reported that they experienced no trouble with the machine. The only unpleasant feature of the trip was a drenching by a heavy rain on the return trip.

AN EMERGENCY CASE.—An Indianapolis physician, being called in consultation to Shelbyville, on a recent Sunday, and being unable to reach his destination (30 miles) until next day, the last train for the night having left, bethought him of A. C. Newby's long distance National Electric runabout, which recently made 118 miles on one charge, and, calling Mr. Newby up by 'phone, explained the circumstance. The vehicle, being charged, was dispatched at once, and the doctor was landed in Shelbyville within two hours. This is the first instance of the motor vehicle being used in such an emergency in Indianapolis, and the doctor was highly pleased with the demonstration.

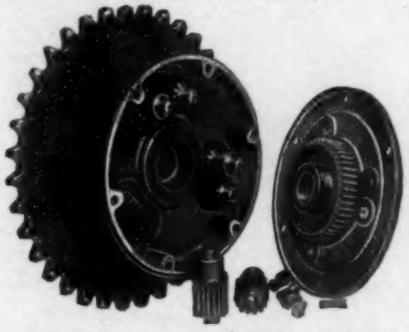
NEW LEATHER COAT.—The wholesale sporting goods house of Iver Johnson & Co., 163 Washington St., Boston, has just placed in the market an original and unique leather automobile coat of their own manufacture designed especially for hard service. The coat is made of imported Swedish dog skin, both black and russet colors, with extra long yoke back, extra reinforced strips for buttons, fancy silk stitching with take-up on sleeves and flannel lining.

TEST OF NORTHWESTERN BATTERY.—A personal test of one of the new batteries perfected by the Northwestern Storage Battery Co., has been made by Mr. Pardee, of Pardee & Co., Chicago agents of the Baker electric vehicles. A stock battery was discharged and placed in a stock Baker runabout and then recharged under Mr. Pardee's directions. It was a 12-cell battery and was charged to 28 volts. In the evening, accompanied by his wife, Mr. Pardee drove the vehicle 37 miles against a gale that finally became so disagreeable that upon arriving at his home he placed the vehicle in his stable. The next morning, without recharging, he drove back over the same course. After running in all 85.1 miles, with the voltage at 23 for nearly 35 miles, the voltage was still at 18 when he stopped. The same battery is still in the vehicle and Mr. Pardee expects to make similar tests once a week, with daily runs of shorter duration during the next 30 days, to determine just how much efficiency is lost, if any. A brief history of this battery is as follows: Two years ago J. R. McMillan organized the General Storage Battery Co., of Chicago, and a number of batteries were built that made runs of from 65 to 85 miles in Woods runabouts and Stanhopes, but Mr. McMillan, not being satisfied with the wearing qualities of these batteries, experimented further and finally produced the present battery. Then he organized the Northwestern Storage Battery Co. and a fine plant was installed and equipped to build both portable and stationary batteries.

RUBBEROID STEERING GRIPS.—The American Enamel Co., of Providence, R. I., is offering a steering handle or grip made of Rubberoid, a substance designed to take the place of hard rubber and bone. The Rubberoid grip is durable and neat in appearance and is very inexpensive in comparison with rubber and bone. It is black and practically indestructible, and is made in all sizes and in any shape to order.

The Dayton Differential

The differential illustrated herewith, of the spur gear type, has a so-called "driving member" that is similar to an iron pulley, having a strong central hub which is bored to receive the inner hubs of the two large spur gears, thus keeping them in alignment. The thrust sidewise from either driving wheel comes squarely against the hub of the driving member and is not transmitted against the opposite side plate so as to wrench it, loosen the screws and cause trouble. The driving member not only carries the large spur gears which are fitted into its hub, but also carries two removable and interchangeable side plates, thus forming a dust proof box, inclosing all the gears. Either or both of these side plates may be replaced at will with sprockets. The engraving shows one of them replaced with sprocket, which is the way they are generally used. These side plates or sprock-



ets carry the bearings for the pinion; these bearings are lined with case hardened steel bushings. The side plates also perform the function of forming a bearing underneath the rim of and against the outer face of each of the large spur gears, thus co-operating with the hub of the driving member in holding these gears rigidly in place, keeping them in alignment and consequently in perfect mesh with the pinions and obviating danger of stripping the teeth or warping or cocking the gears or pinions when subjected to the strain incident to a sudden application of the band brake. The six pinions are each cut out of solid steel. This gear, made by the Dayton Motor Vehicle Co., 1112 E. Fifth St., Dayton, O., can be opened on either side for examination without being removed from the vehicle. It is adapted for use with two separate axles or one solid axle and sleeve. All parts are interchangeable. The company purposes making it in such variety of sizes as the trade demands.

A New Transmission Gear

The transmission gear shown in the accompanying illustration has two speeds, forward and reverse. There are two sets of gears and a friction clutch, the slow speed forward being obtained by a brake band and the high speed by throwing in a clutch cone. The gear is reversed by shifting the collar to the opposite gear and applying the brake. It can be used with either

one or two levers, although two are generally used. Only one set of gears is working at any time, the others running idle, thus reducing friction. All gears are made of steel and hardened brass, preventing liability of stripping and requiring less power. The gear is practically noiseless, owing to the meshing of the special alloy of brass with the steel. The extreme width is 8 in. on either engine shaft or counter-shaft. This gear is the invention of Joseph Schmidt, Jr., whose patents are pending. It is manufactured by the American Gasoline Motor Co., 69 to 71 Jackson Boulevard, Chicago, Ill.

STORAGE, REPAIR AND SUPPLY STATIONS

CONNECTICUT

SPEED—Outside city limits, 15 m.; inside, 12 m.; reduce at crossings; penalty for violation, not more than $200. HORNS or GONGS—Not required by letter of law. LAMPS—Required on all rubber-tired vehicles; must be lighted from 1 hour after sunset to 1 hour before sunrise; penalty, $5. If lights go out, operator "may proceed at 6 m. and give audible signal as often as 500 ft. are passed over."

HARTFORD

304 ALLYN ST. Phone 219-2
S. A. Miner. Phone Will Bring Our Repair Car Anywhere. Storing, Repairing, Charging, Gasoline. Always open.

43 WELLS ST. Phone 165
Hartford Automobile Station. Open day and night. Storing, Repairing, Charging, All Supplies.

NEW HAVEN

SPEED, ETC.—See state law. PARKS—Not allowed in some. HORNS or BELLS—Not required by letter of law.

DIST. OF COLUMBIA

WASHINGTON

SPEED—Outside city limits, 15 m.; off car-line streets, 12 m.; on intersecting car-line streets, 6 m. LICENSE—Required; fee, $3; penalty, for operating steam vehicles without permit, $1 to $40.

1124 CONN. AVE., N. W. Phone Main 3027.
The National Capital Automobile Co. Agents for the Oldsmobile, Autocar and Packard. Storage, Repair and Supply Station.

ILLINOIS

CHICAGO

SPEED—Everywhere in town, 8 m. BELLS—Required, to be sounded at street crossings, etc. WHISTLES and HORNS—Prohibited. LAMPS—Required; must be lighted between dusk and dawn. LICENSE—Operators required to have license; fee, first year, $3; thereafter, $1. NUMBERS or INITIALS—Not required. BRAKES—Two sets required, one independent of driving gear. SPECIAL—No machinery may be left running when vehicle is standing in street with no one in charge.

5311-13 COTTAGE GROVE AVE. Phone Drexel 9363
C. A. Coey & Co., Agents for Woodruff Automobiles. Storing, Repairing, Renting and Supplies.

4 CALHOUN PLACE, near Dearborn. Tel. Central 4334
A. J. Milliman. Storing, Repairing, Remodeling and Supplies.

285 N. STATE STREET. Telephone North 1430
Chicago Automobile Repository Co. Storage, Repairing, Remodeling and Supplies.

385 E. SUPERIOR STREET, Rear. Tel. North 1522
North Division Auto. Co. Automobiles Sold, Repaired, Charged and Stored.

12 PLYMOUTH PLACE. Phone Jackson 393
S. S. Williams. Special Machine Work. Gasoline Engines, Automobile Repairing.

VAN BUREN and OAKLEY BLVD. Phone West 252
Hagmann & Hammerly. Storage, Repairing, Remodeling. Agents Remington.

MASSACHUSETTS

SPEED—Outside city limits, fire district or thickly settled part of a town, 15 m.; inside such limits, 10 m.; approaching horses, reduce speed if animal shows fright and stop on signal of driver; reduce at crossings. PENALTY—Fine not exceeding $200, or imprisonment not exceeding 10 days, or both.

BOSTON

SPEED—In city streets, 10 m.; in parks, 8 m.; outside city, 15 m. LAMPS—Three required. PARKS—Permit required from Park Department.

43 AND 45 COLUMBUS AVENUE
G. T. Gould, Boston Agency for the U. S. Long Distance Car.

147-153 COLUMBUS AVENUE
Columbus Automobile Exchange—A. J. Coburn & Co. Automobiles and Motor Cycles. Sole Agents for Orient, Elmore, Crestmobile, French Darracq Cars.

147-153 COLUMBUS AVENUE. Phone 388-2 Tremont
Columbus Automobile Exchange, New England Agents for Steam and Gasoline Automobiles. Storage, Repairing, Supplies.

Entrances Clarendon & Stanhope Sts. Tel. 251-9Trem't
Back Bay Hydro-Carbon Repair Co. Gasoline Car Repairing a Specialty. All Work Done by Experts. First-class Storage Station.

66-68 STANHOPE STREET. Telephone 211 Tremont
Automobile Headquarters. Eastern Agts. for Knox, St. Louis, Gasmobile, Stearns, Pierce Motorettes. Also French and American Touring Cars. Open night and day the year 'round.

TREMONT AND BERKLEY STS. Phone 1097 Tremont
Boston Salesrooms, Odd Fellows Building. "White Steamers." Stanhopes, Phaetons and Touring Cars. First-class Storage and Repair Stations.

CAMBRIDGE

424 MASS. AVE. Phone 142 Cambridge
Crest Mfg. Co. Repairing, All Supplies. Expert Mechanics and Electricians Furnished. Makers of Crestmobile; $600. Crest Gasoline Motors, Coils and Parts.

8-10 PALMER STREET. 72-2 Cambridge
Harvard Automobile Co. Storing, Charging, Repairing, Building. Always Open.

SALEM

COR. DODGE AND LAFYETTE near Depot.
Phone—Day, 438-4; Night, 106-4.
Repairing, Storing, Gasoline. All Supplies. Zina Goodell Mfg. Auto Parts and Machines to Order.

SPRINGFIELD

SPEED—State law applies. Reduce at street intersections. LAMPS—Required 1 h. after sunset; not enforced. ALARM—Required to be sounded as necessary. PARKS—Permit required for Forest Park; furnished free; rules accompany permit. No registration.

36-38 DWIGHT ST. Phone 869-12
Automobile Headquarters. J. E. Cowan, Mgr. Storing, Repairing, Charging, Supplies.

TAUNTON

4-5 POST-OFFICE SQUARE. Phone 209-3
Repairing, Gasoline, Water and Supplies. Robertson Auto Station.

WORCESTER

SPEED—10 m. GONG or HORN—Required. State law applies.

43 FOSTER, corner COMMERCIAL. Phone 659-4
Worcester Automobile Station, No. 1, Agents for Packard, Oldsmobile, Autocar and Rambler. Storing, Charging, Repairing, Supplies. Always open.

671-673 MAIN ST. Phone 1550
Robinson Automobile Station, Agents for U. S. Long Distance, White, Locomobile, Waverley. Storing, Charging, Repairing, Supplies.

MICHIGAN

DETROIT

265-267-269 JEFFERSON AVE.
W. E. Metzger, Agent for Waverley, Columbia, Baker, Olds, Toledo, Winton, Mobile and Geneva. Repairing and Charging Station.

NEW JERSEY

ATLANTIC CITY

1003 ATLANTIC AVE. Phone, Local 677, L-Distance 63A
J. C. W. Parsons, Agent for Locomobile and Electric Automobiles. Storing, Repairing, Gasoline and Supplies. Open always.

12 SO. MARYLAND AVE. Phone 544XBell
H. W. Cochran, Agent for Electric Vehicle Co. Charging, Storing, Repairing, Gasoline, Supplies.

NEWARK

SPEED—In Newark, 8 m.; outside Newark, in Essex County, 15 m.; rounding corners, 4 m. HORN or BELL—Required to be sounded 100 ft. from other vehicles. LAMPS—One required, to be lighted 1 hour after sunset. LICENSE—Required; fee, 50 cents. INITIALS—Required on vehicle.

MECHANIC STREET, 27. Phone 3071 Newark
W. B. Dodge. Agent Electric Vehicle Co. Charging, Repairing, Storing and Supplies.

PATERSON

SPEED—No regulation. HORNS or GONGS—Some alarm required. LAMPS—Required between sunset and sunrise.

450 BROADWAY. Telephone 2433
Agent for French Darracq, Oldsmobile, U. S. Long Distance, Locomobile, Prescott and Waverleys. Storing, Charging, Repairing and Supplies.

NEW YORK

COCKS LAW—SPEED—Outside corporate limits, 20 m.; on bridges, 4 m.; inside corporate limits, 8 m., except where higher speed is permitted by local ordinance. PENALTY—A fine not exceeding $50, or imprisonment not exceeding 6 mos., or both. HIGHWAY LAW (Doughty)—SPEED—Outside built-up parts of towns and villages, 15 m.; in built-up sections of towns, 8 m. Must stop on signal of driver to let restive horses pass. REGISTRATION—Owner must obtain certificate from Secretary of State within 10 days after purchasing vehicle; fee, $1. INITIALS—Required to be fixed to back of vehicle and must be 3 ins. high and ½ in. wide. LAMPS—Two required showing white light in front; also red light visible behind; must be lighted between from 1 hour after sunset to 1 hour before sunrise. BELL or HORN—One or other required. BRAKES—Required to be good and efficient; penalty, fine not exceeding $25. LOCAL ORDINANCES—The state road law prohibits local town and park boards from excluding automobiles and bicycles from open public highways; from placing lower speed limits than 8 m. and 15 m. in unbuilt-up parts of towns, and from requiring license or permit except from owners of public vehicles.

ALBANY.

SPEED, LIGHTS, ALARM, INITIALS, ETC.—State law applies. BRIDGE TOLL—Single seat, 10 cents; double seat, 15 cents.

97-99-101 CENTRAL AVENUE Phone 1509F L. Dis.
Automobile Storage & Trading Co,, General Agency for Automobiles. Storage, Supplies, Repairs. Competent Attendants.

167 NORTH PEARL STREET. Long Distance 967
Albany Automobile Works. Motor Vehicles of all Types Stored and Repaired. Machine Shop Attached. Charges Moderate.

255 SHERMAN STREET. Phone 257F West
C. F. Weeber Mfg. Works. The Largest and Best Equipped Automobile Repair Shop in the city. Mfr. of Weeber Muffler.

BROOKLYN

712 BEDFORD AVE. Phone 537 Williamsburg
Lincoln C. Cocheu. Charging, Storage, Repairs. Batteries a specialty.

752 BEDFORD AVE. Phone 2356A Williamsburg
J. W. Mears, Exclusive Agency U. S. Long Distance Car. Automobiles Stored, Repaired, Sold and Exchanged.

1148 BEDFORD AVE. Telephone 2422 Bedford
Arthur R. Townsend. Agent for the Waverly Electric, Toledo Steam, Toledo Gasoline Car, Knox Gasmobile. Charging, Storing, Repairing, Supplies.

10 CLINTON ST., near Bridge. Phone 1225 Main
Maltby Mfg. Co., Agents for Mobile, Olds, National Electric. Storage, Repairs, Batteries Charged, All Supplies.

342 FLATBUSH AVE., near Eighth. Phone 1681 Main
International Motor Car Co. Charging, Storage, Repairing, Supplies. Open day and night.

473 FLATBUSH AVE. Phone 618 Flatbush Ave.
Alex Schwalbach. Agent for All Popular Makes. Motor Cycles and Their Repairs a Specialty. Practical Repairer of Gasoline Automobiles. Carriage Tires Repaired and Replaced. Bicycles. Long Island Agent for the Racycle.

1239-43 FULTON ST., nr Bedford Av. Phone Bedford 705
Brooklyn Automobile Co., Agents Haynes-Apperson, Oldsmobile, Locomobile. Charging, Repairing, Supplies.

1241 FULTON ST. Phone 705 Bedford
Chas. W. Spurr, Jr., exclusive agent for Brooklyn and Long Island for Crestmobile. Price $600. Call and take a ride.

3 PROSPECT PARK WEST. Phone 969 Prospect
Prospect Park Storage Co., Agents National Electric. Charging, Repairing, Storing, Supplies.

58 SCHERMERHORN ST. Phone 3710 Main
Patterson & Shaw, Agents Elmore, Gasmobile, Waverley. Storage, Repairing, Charging, Supplies.

BUFFALO

SPEED—8 m.; on Main Street, south of Chippewa, 5 m.; rounding corners and at street and alley intersections, 5 m. HORNS or GONGS—Not required. LIGHTS—Required all hours after nightfall. REGISTRATION, etc.—State law applies.

NEW YORK CITY

SPEED, LAMPS, BELLS, LICENSE—See state laws. FERRIES—Will carry any class of vehicle with tanks filled if engine is stopped and fire

extinguished; toll, same as for teams. BRIDGE TOLL—Same as for teams.

17th STREET, 91 FIFTH AVE. Phone 6640-18th St.
International Motor Car Co. N. Y. Salesroom Toledo Steam and Gasoline and Waverley Electrics. Storage, Charging and Repairing.

37th STREET, 515 7th AVE. Tels. 6495&6496 - 38th
Smith & Mabley, Importers of Panhards, C. G. V., Renault Automobiles, Parts and Supplies. The American C. G. V. Gasoline Cars. Storage and Charging Station. Open Day and Night. Specially Equipped for Repair of Foreign Cars.

38th ST. 136 WEST. Phone 476 38th St.
Standard Automobile Co. Sole U. S. Agents for the Decauville French Car. Also American Gasoline Cars. Thoroughly Equipped Repair Shop, Employing Only Skilled Mechanics. Parts, Replacements, Supplies and Storage.

38th ST, 138 WEST. Phone 6684 38th St.
The Oldsmobile Co. New York Agents Oldsmobile Gasoline Runabouts.

43d, 38-40 WEST. Telephone 691—38th.
A. G. Spalding & Bros., Agents for the Autocars, Mobiles, Oldsmobiles and Waverley Electrics. Charging, Repairing, Storing, Supplies. Open Day and Night.

43d ST. 50 WEST. Telephone 2289—38th
Banker Bros. Co., Agents for Peerless Gasoline Cars, Pierce Motorettes and De Dion Parts. Storage, Repairs, Charging and Supplies. Open Day and Night.

44th ST. 307 WEST. Tel. 6486B 38th St.
Long Acre Auto Depot. Storing, Repairing, Supplies. Second Hand Machines Bought and Sold.

44th ST. 523 FIFTH AVE. Tel. 6029 38th St.
Westchester Auto. Co. Agents for Leading French and American Automobiles. Storage, Repairs, Supplies, etc.

50th ST. 239 WEST. Tel. 902 Columbus
Alexander Fisher. The Georges, Richard, Mercedes, Rochet-Schneider.

51st STREET, 143 WEST. Phone 1601 Columbus
Knickerbocker Automobile Station, S. O. Minter, Mgr. Storage, Charging, Repairing and Supplies.

53d STREET, 1684 BROADWAY. Phone 2397 Col.
Central Automobile Co. Sole U. S. Agents for Pugeot, Mors, Cottereau. N. Y. City Agents Electric Vehicle Co., of Hartford. Charging, Storing, Repairing. Parts for French Vehicles. All Kinds of Supplies. Open Day and Night.

57th STREET, 140 EAST. Phone 1161 38th St.
John Wanamaker. Fournier-Searchmont, Baker, Mobile. Charging, Storing, Repairing and Supplies. Open Day and Night.

57th ST. 154 EAST. Phone 3473 - 38th St.
Metropolitan Motor Car Co. Expert Repairs for All Makes of Vehicles. Charging and Supplies.

58th STREET, 33-39 EAST. Phone 762 - 38th
Barry & Hayes. Storage of Foreign Machines a Specialty. Repairs and Supplies.

58th ST. 150-152 EAST. Telephone 4421 - 38th St.
Winton Motor Carriage Co., Branch House. Storage and Repairs for Wintons Only.

59th ST. 306 WEST. Telephone 2060 Columbus
A. Elliott Ranney, Agent for Remington, Prescott, Darracq, Waverley and Toledo Storage and Supplies.

59th ST. WEST, 317-319. Telephone 623 Columbus
Adams-McMurtry Co., Agents for Packard Gasoline Cars. Repairing, Supplies.

60th STREET, 10 WEST. Phone 1874 Col.
Webster Auto. Co. Agents Webster Gasoline Tonneau Car, Prescott Steam Carriages. All Makes of New and Second Hand Carriages Purchased, Exchanged and Sold. Storage, Repairs and Supplies.

60th STREET, 38-40 WEST. Phone 2440 Columbus
American Storage Co. for Automobiles. Five Floors and Basement. Storage, Charging, Repairing and Supplies. Special Facilities for Taking Care of Foreign Machines and Oldsmobiles. Open Day and Night.

66th ST. 57 WEST. Tel. 1271 Columbus
St. Nicholas Automobile Depot. Storage, Charging, Repairing and Supplies. Open Day and Night.

80th ST. 250 WEST. Phone 2562 Riverside
Pa-delford & Bell, Agents for Columbia Electric Automobiles. Salesroom, Storing, Repairing, Supplies.

86th ST., 205-207-209 EAST. Tel. 3269-79th St.
Yorkville Auto. Station. Exceptional Storing Facilities. Repairing and Supplies.

89th STREET, 202-210 WEST. Tel. 144 Riverside
West End Storage Co. Dead Storage $5.00 to $10.00 a Month. Live Storage. Repairs and Charging.

98th ST. and FIFTH AVE. Telephone 2369 - 79th St.
E. R. Fisher, Prop. Storing and Repairing Steam and Gasoline Only. Supplies.

100th ST., Cor. Broadway. Tels 2686 & 2687 Riverside
Homan & Schulz, Sole New York Agents for Northern Gasoline Runabouts. Also Agents for Darracq, Locomobile, Waverley and Woods. Best Facilities for Difficult Repair Work. Storage, Charging and Supplies.

120th ST. 175 EAST. Phone 1444 A Harlem
Chas. Strathman, Agent for Mobile. Storing, Repairing and Supplies.

127th ST. 152 WEST. Phone 3326 Harlem
West End Automobile Exchange. Storing, Repairing, Cleaning, Supplies. Always open.

127th STREET, 153-159 WEST. Phone 1549 Harlem
Harlem Automobile Co. Storing, Charging, Repairing and Supplies. Tire Vulcanizing on Premises.

SYRACUSE

SPEED, ETC.—See state law. No local legislation.

346-348 SO. WARREN ST. Phone 955 New
Syracuse Automobile Co. (Incorporated), Agents for Locomobile, Oldsmobile, Waverley. Storage, Repairs, Gasoline and Lubricants. Special Attention to Tourists.

110 WEST ONONDAGA ST. New Phone 2186 A
Hoffman & Weaver, Agents for the "Mobile." Finest Equipped Repair Shop in City. Sundries and Storage.

TROY

359-361 FULTON STREET. Phone 399M
James Lucey, Automobile Exchange. Stearns, Gasoline and Electrics. Storing, Charging, Repairing, Gasoline.

UTICA

ONEIDA SQUARE. Phone 884-A
Miller-Mundy Motor Carriage Co., Agents for White Steamer, Pierce Motorettes, Waverley Electrics. Storing, Repairing, Charging.

OHIO

CLEVELAND

SPEED—Within ¾-mile from east and west ends of Superior Street viaduct, 7 m.; outside such radius, 15 m. Must stop upon signal from horse driver. LICENSE—Required; fee, $1. NUMBERS—Registered numbers must be attached at rear and kept clean. LAMPS—One on each side must be kept lighted during darkness. BELL or HORN—Required, and must be sounded when there is danger of accident. PENALTY—For violation of any section, fine not exceeding $50.

COLUMBUS

SPEED—Off of business streets, 14 m.; on business streets, 8 m. PENALTY—Fine from $5 to $50 or 30 days' imprisonment. BELLS or HORNS—One or other required, to be sounded when necessary. LAMPS—Required after dark. PENALTY—Fine not exceeding $50.

TOLEDO

SPEED—Inside city limits, 10 m.

CINCINNATI

SPEED—In streets and parks, 8 m. HORNS or GONGS—Must be sounded 100 ft. before street crossings. LAMPS—Must be lighted between sunset and sunrise. BRAKES—Efficient brakes required. LICENSE—none required. INITIALS—None required. TOLLS—Bridge toll, 10 cents. SPECIAL—Two vehicles must not travel abreast.

PENNSYLVANIA

PHILADELPHIA

SPEED—Inside city limits, 7 m. Parks, same. BELLS or GONGS—To be sounded only at crossings. LAMPS—Required. PARKS—State law limits speed to 7 m. LICENSE—Required in parks; fee, 25 cents. NUMBERS—Must be attached at rear of vehicle in parks. TOLLS—No bridge tolls, but main roads have toll gates each 2 or 3 m.; charge same as for 2-horse team. FERRY—Charge same as for 2-horse team.

ARCH 1319. Phone 3-27-38
Winton Motor Carriage Co. A. E. Maltby, Mgr. Repairing, Supplies—Winton Cars only.

138-140 N. BROAD ST. Phone I-42-51A
Quaker City Automobile Co., Agents for Oldsmobile. Storing, Repairing, Supplies. Open day and night.

N. BROAD 250-256. Phone 1-37-42
Pennsylvania Electric Vehicle Co., Exclusive Licensees of Pa. for Columbia Automobiles. Charging, Storing, Repairing, Supplies.

N. BROAD ST. 304. Phone I-33-83
Broad St. Automobile Station, Agents for Panhard, Richard, Spalding and Crestmobile. Storing, Charging, Repairing, All Supplies. Open day and night.

23d and WALNUT STS. Phone 1-38-65
John Wanamaker. Fournier-Searchmont, Baker, Mobile. Charging, Storing, Repairing and Supplies. Open day and night.

PITTSBURG

SPEED—In city streets, 12 m.

YORK

SPEED—In city limits, 8 m. LAMPS—Must display one or more lights.

REAR 14 NORTH GEORGE ST. Phone 42251
J. P. Oden. Automobile Exchange. Storing and Charging. First Class Repairing Only.

COR. MARKET & BEAVER. Express Bldg. York Phone
Storage, Repairing and Supplies. Agent for Oldsmobile.

RHODE ISLAND

SPEED—Outside compact parts of cities and towns, 10 m.; inside, 8 m.; reduce at crossings. INITIALS—Resident owners must display initials in block letters 2 ins. high. BELLS and HORNS—One or other required, but must not be used excessively. MUFFLER—Required at all times on public highway. PENALTY—Fine of $10 or 10 days' imprisonment for first offense; doubled for subsequent violations.

PROVIDENCE

SPEED—In city, 10 m. LAMPS—Three required.

OPPOSITE UNION STATION. Telephone 1058
H. G. Martin & Co., Agent Winton, Locomobile, Elec. Veh. Co. Storing, Charging, Repairing, All Supplies. Always Open.

WISCONSIN

MILWAUKEE

SPEED—Inside city limits, 8 m.; in crowded places and street crossings, 4 m. LICENSE—Required; fee, 25 cents. NUMBERS—License number must be affixed to vehicle in conspicuous place. BRAKES—Required to be able to bring vehicle to stop in 10 ft. at 8-m. speed. BELL—Required. LAMPS—Two required, showing white in front and red behind. PENALTY—Fines not to exceed $50 or imprisonment not exceeding 90 days.

501 BROADWAY. Phone Black 8072
Bates-Odenbrett Automobile Co. Storage, Repairing and Supplies.

Index to Advertisers

Special Notices

Advertisements of second hand vehicles or parts for sale, or for Positions Wanted, inserted under this heading at 10c per line. Remittance must accompany copy.

FOR SALE—Genuine bargains to close out stock. One Waverley Electric automobile in fine condition. One Elgin Electric automobile. The following machines are complete with the exception of power: One Runabout, painted and upholstered, with tires. One Stanhope, slightly used but in good condition, with tires. One Stanhope, painted and upholstered, but without tires. One Runabout (heavier model) painted and upholstered, with tires. One 11 h.-p. Gasoline Motor (2-cylinders). A few gears, bodies, and wheels at low prices. Write for prices. C. A. Coey & Co., 5311 Cottage Grove Ave., Chicago, Ills. 27

FOR SALE. — One Locomobile with steam air-pump, in good condition, $250. One Locomobile in good condition, just painted, $225. One Locomobile, style **0. 2**, nearly new, with steam air pump, $475. Two Mobile Dos-a-dos, both in first-class condition, $550 each. One Waverley Electric, $450. One Waverley Electric, $250. One De Dion Bouton Motorette, $450. One De Dion Quadricyle, $2.75. One Oldsmobile with top and a Dos-a-dos seat, $500. One Oldsmobile with Dos-a-dos seat, $475. One Standard Oldsmobile, $450. One Oldsmobile, fitted with emergency brake, new style; switch, new tires, and just painted, $550. F. W. Stockbridge, 450 Broadway, Paterson, N. J. 20

FOR SALE.—New model Long Distance. Run but few miles. In perfect condition—even better than when new. Cost $1,200. Will sell for $1,050 for prompt cash and include new magneto, extra tire and bell odometer. Reason for selling, want two seater. Address Box D, Jersey City, N. J. 27

FOR SALE.—Specially built Steam Automobile, nearly new. Dos-a-dos (or Stanhope). Latest Type Locomobile Engine. Entire machine in perfect condition. Will sell for low price if taken immediately. Address "Q," Automobile and Motor Review, 395 Broadway, New York. 20

FOR SALE.—Locomobile, almost new, with top. All in excellent condition and at a bargain if taken at once. Reason for selling, can not afford two machines. Address "X." care Automobile and Motor Review, 395 Broadway, New York City. 18

FOR SALE—Model "A" Locomobile Touring Car, run less than 100 miles. Will sell at a sacrifice. Price on application. Address, P. O. Box 454, New Haven, Conn. 27

FOR SALE — One Packard style metallic body, new. Address W. S. Dunning, Alexander Iron Works, Syracuse, N. Y. tf

WANTED—We are always in the market for all makes of second-hand automobiles and motor cycles, for cash. Send description and last price. Jandorf Auto and Export Co., 36 Warren Street, New York City. 11

WANTED—The agency for good automobiles and motor cycles. Finest down-town location in the city. Jandorf Auto and Export Co., 36 Warren Street, New York City. 11

WANTED—A position in the automobile industry, where an unusual knowledge of gasoline engines is required. Address "K," care the Automobile and Motor Review, 395 Broadway, New York. 20

WANTED—July and October, 1900, numbers of the Automobile. If you have them write us and we will pay 20 cents each for the first copies offered. The Class Journal Co., 395 Broadway, N. Y.

WANTED. — A second-hand Screw Machine. Capacity, 1¼ through chuck plunger; friction back gear, wire feed, automatic feed to turret. Mianus Motor Works, Riverside, Conn. 20

Miscellaneous

ORDER a copy of "The Construction of a Gasoline Motor Vehicle." By C. C. Bramwell. Fully illustrated, neatly bound. Price $2.00, carriage prepaid. Address Book Department, Class Journal Co., 395 Broadway, New York.

FOR SALE—The Gas Engine Hand Book, giving complete information on gas engines. Well illustrated. Handsomely bound in leather, $1.50, postage prepaid. Address Book Dept., Class Journal Co., 395 Broadway, New York.

COMPRESSED AIR—Its Production, Uses and Appliances, by GARDNER D. HISCOX, M.E. Cloth $5.00, Half Morrocco $6.50. Book Dept., The Class Journal Co., 395 Broadway, New York.

FIRE! Another $1,200 automobile burned which could have been saved by

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for the small sum of $1. One tube will extinguish 200 sq. ft. of gasoline flame in 5 seconds.

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During the touring season we will send postpaid the Waldron Eye Shield on receipt of 50c. WRITE TODAY. Dust Proof and Adjustable to Any Cap.

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Storage by day or month. Station always open. Best equipped repair shop in New England. Automobile Supplies of all kinds. New and slightly used Automobiles for sale.
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BOSTON SALESROOMS
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Stanhopes, Phaetons and Touring Cars. First-class Storage and Repair Stations in connection.

WINTONS, Locomobiles, Long Distance, Packards, Oldsmobiles, Crestmobiles, Gasmobiles, and all popular styles, in good serviceable condition, at prices ranging from $225 up.

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OFFICE: 220 BROADWAY. STABLE: 16 WEST 18TH STREET
Telephone: 1435 Cortlandt. NEW YORK CITY

IMPORTANT MILWAUKEE MATERIAL SALE

We have purchased all the material left on hand at the time of the failure of the MILWAUKEE AUTOMOBILE CO. and prices quoted below apply only where parts are wanted in lots of 25 or more of a kind. **Smaller orders will be filled but only at an advance of 50 per cent. in price.**

All parts are forged unless otherwise specified, the only cast parts being the front spring blocks, brackets for carrying side steering fittings and by-pass lever set, steps and hubs, all of these, however, being cast steel.

Almost every fitting is machined, that is, bored, faced and drilled, ready for pinning and brazing.

Lugs are bored for 1¼ inch main frame tubes.

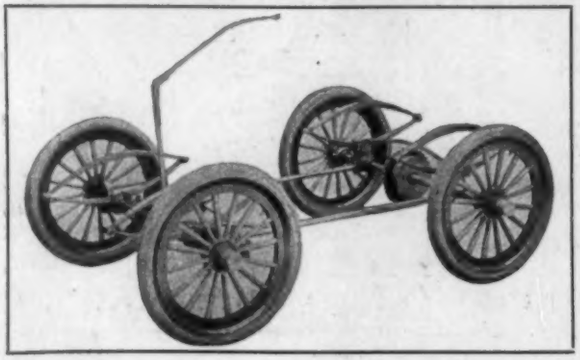
There is not a piece of cheap material in the lot, all of it being of the best in every particular, each and every piece being a bargain considering the quality.

The differential gears offer splendid value, they being bored for 1¼ inch shaft, some fitted with 30-tooth sprokets for 1x$\frac{5}{16}$ block chain.

We refer to Our Catalogue No. 1, page 19, where reference numbers are given, many of the fittings being the same, while others are quite similar in design.

We will be pleased to ship samples upon receipt of small order prices. No rebates allowed on such orders should a quantity be taken at a later date.

		Each
332	Straining rod yokes (similar to No. 21 our Cat.) some rough some machined	$ .20
708	Rear axle ends (same as No. 1 our Cat.) bored for tubing and machined for cup	.50
149	Engine Sprocket blanks, bored and turned ready for milling $\frac{5}{8}$ thick and for 12 and 14 teeth	.05
898	Machined front axle ends (No. 2 our Cat.)	.55
378	Lugs for side steering fittings (similar to No. 37 our Cat.) but heavier. Machined and bored	.05
25	Half rear axles, machined and threaded for cones, etc., 1¼ inch diameter	.50
1304	Axle end Lugs, R. & L., for axle each side of differential (similar to No. 3 our Cat.) but with projecting lugs to take diagonal braces like Nos. 39 and 49 our Cat. Machined	.30
80	Steering Knuckles, ¾ inch in the rough (forged) similar to No. 17 but smaller	.50
905	Rear Axle Spring Blocks, bored and drilled	.30
260	Front Spring (single) blocks (cast steel) bored	.10
129	Large Sprocket blanks bored 8$\frac{1}{16}$ inch and turned, $\frac{3}{8}$ and $\frac{5}{16}$ thick	.15
35	Nickeled center and side steering posts in fairly good condition	.50
28	Nickeled center steering handles, bent	.50
6	Nickeled connecting rods between knuckles and center lever	.10
14	Sheet metal mud guards, not enameled (rears)	.50
14	" " " " " " (fronts)	.60
4	Patent leather mud guards (rears)	.75
16	" " " " (fronts)	.80
21	" " Dashes	.75
774	Reach brace clips, machined for 1¼ inch tube only (similar to No. 18 and 9 our Cat.)	.07
301	Steering lever forgings broached (square hole) and drilled, similar to No. 22 our Cat. except that hole is square	.25
17	Cast steel steps, rough	.10
168	Pinions for bevel differential gears	.25
50	Cut Gears to fit above pinions for side gears of differentials, forged	1.00
108	Foot break levers, unmachined (forged)	.10
27	" " " nickeled with bed plate, bolt and nuts	.50
254	Machined Forgings for carrying steering post-socket, similar to No. 6, our Cat.	.10
237	Forged levers for connecting throttle operating shaft to throttle, similar to No. 24 our Cat. except that the end is like No. 8	.07
155	Small forgings, rough, similar to No. 37 our Cat	.02
116	Forged L Levers, bored, long arm 3 in., short arm 1 in.	.02
146	Forged, rough, steering rod ends, similar to No. 37	.02
94	Top brackets, rough cast steel, for side steering fittings	.10
100	Lower " " " " " "	.10
664	Reach end T, forged, bored	.10
118	Forged Reach end lugs, machined, for arch on rear axle, left side, from the rear, with lug for small diagonal brace	.15
157	Same as above, machined, some rights and some lefts	.15
57	Same as above in the rough	.10
62	Large for'd levers for throttle or rev'se, partially mch.	.15
27	Small " " " " " "	.15
98	Cast steel hubs, in the rough	.20
37	Front hubs, machined and drilled, some nickeled	.50
60	" " " " " " all key-seated	.50
166	Cast steel bearing lugs for mounting by-pass lever, throttle and reverse mechanism in body. Rough	.05
32	Forged braces or yokes to go round differential (similar to No. 19 our Cat.) these rest on axle ends next to differential, said axle ends forming a brace plate to which yoke is bolted. Drilled	.60
237	Sm. forked forg's, rough (similar to No. 8 our Cat.)	.05
48	Steering rod ends, like No. 37 our Cat.	.02
82	Steering rod ends, female ends to match above, like No. 8 our Cat.	.02
281	Similar to No. 24 but shorter, with slotted end, partially machined	.08
68	Same as above, machined	.10
48	Same as above, but with longer arm, male end, partially machined	.08
31	Blank cast caps for wire wheel hubs, rough	.01
100	¼ Brass Tees	.04
50	⅛ Brass Crosses	.08
500	Pin Valve, wood handle	.01
80	Bevel differential gears complete less sprockets for 1¼ shaft	7.00
25	Bevel differential gears complete with 30 tooth sprocket for 1x$\frac{5}{16}$ block chain, new	8.50
	Slightly used	6.00



We have eight Brecht Running gears similar to illustration, but less steering fittings, 3,500 lbs. capacity. Price remarkably low. Write for circular.

TERMS: Cash with order, or half cash balance C.O.D. or sight draft with bill of lading attached.

Remittances must be made in either P. M. O. or Chicago or New York Exchange.

Orders accompanied by checks will not be filled until checks have been passed through the banks and exchange charges paid.

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